# The Boston Medical and Surgical Journal

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## Addresses.

## MEMORIAL ADDRESSES.*

### I.

### Francis Bishop Harrington, M.D.


By Herman F. Vickery, M.D., Boston.


Francis Bishop Harrington was of old New England stock, being descended in a direct line from Robert Harrington, who was one of the selectmen of Watertown, Massachusetts, for fifteen years, beginning in 1679. Robert's grandson received the degree of A.B. at Harvard in 1728. Four generations later came the subject of our sketch. He was born in Salem, August 15, 1854. Within six years his father died, at the early age of thirty-three, leaving three sons to be reared by his widow. In this she received substantial aid from her husband's brother, but the little household had frugal ways. In wartime the children were not allowed both molasses and butter on their bread. The mother was a remarkable woman, with the highest sense of truth, honor, and justice, wise and absolutely unselfish. The children of such a mother were fortunate and it was natural that she received to the end the greatest love and veneration. Their home was on the outskirts of the town, purposely so located by the invalid father, and Dr. Harrington never forgot the happy existence he led as a boy, summer and winter, except for the interruption of school hours, in the open fields and rocky caves of Salem. We can see then that various favorable influences acted on young Harrington: his ancestry, a love and opportunity for outdoor sports, the good schools of Salem, the modest worldly circumstances desiderated by Solomon, and above all, a perfect mother.

He entered Tufts College in 1873 and was duly graduated A.B. in 1877, standing as to scholarship about seventh in a class of seventeen. "He quickly won the respect and confidence of his teachers and of the whole student-body." In athletic pursuits he showed general excellence and in the newly-introduced game of football, in which he had had no special training, he was preëminent. A classmate, Professor William M. Hooper, says: "In the great victory won by Tufts [over Harvard] on Jarvis Field, in the autumn of 1875, he was not only unquestionably the best player on our eleven, but proved to be practically invincible to the attacks of our opponents. With the ball safely tucked under his left arm and his long right arm swinging in front like the boom of a derrick, he would tear down the field to a touchdown, leaving in his path a line of Harvard men on their backs." During his college career, he made as has been said, a favorable impression upon the faculty, and in later years he was more than once consulted by the authorities as to matters of college policy.

On leaving Tufts he entered the Harvard Medical School, living for the first year in the College Yard with his cousin, the late Dr. Charles Harrington. During 1880-1881 he served as surgical house pupil in the Massachusetts General Hospital, and in 1882 he received the degree of M.D. He played football on the varsity eleven the first year he was in the Medical School but his whole heart was not in the game. His profession had inspired a deeper and worthier love. Still throughout his life he enjoyed greatly outdoor recreations: tennis, golf, skating, tobogganing, camping, and fishing for trout and salmon in the Adirondacks and New Brunswick. Often he joined in games with his children, as young

* Read at the meeting of the Boston Society for Medical Improvement on November 23, 1914.

in his spirits as they. Those who were matched against him in any game did not find it wise to think he was beaten till it was entirely over. He did not particularly enjoy sailing but he visited Europe and Bermuda and the Panama Canal. His excursions showed his wonderful recuperative powers and gave a literal meaning to the word "recreation". For example when he started for Bermuda last spring, he had high blood-pressure, and was worn down with work and agonizing abdominal pain, yet in a few days he was so comfortable and joyous and active that it was not easy to believe that his previous symptoms could have had an organic cause.

Throughout his life he read constantly, keeping well abreast of all professional advance and also of the world's progress in general. He had good musical ability. He had a keen sense of humor and caught the diamond flash of a joke wherever it might be; but for him to enjoy it, fun had to be clean and kindly. He faced the truth fearlessly but also he was brave and hopeful and did not forget that the prophecy of a physician may carry with it its own fulfilment. He did not think it wise that the patient should bear the burden of all the untoward possibilities of his condition and he was willing in a critical case to throw his own reputation into the balance if that might help to incline it in the right direction.

In 1882, he began the general practise of medicine in Boston; and in October of the same year he married Miss Abbie Josephine Ruggles of Fitchburg. Of this marriage I cannot omit to say that throughout his life it brought him happiness and inspiration. In 1884, he was ap pointed physician to out-patients in the Massachusetts General Hospital. Two years later, at the request of others and in accordance with his own preference he was transferred to the surgical side. His subsequent promotions, appointments, and honors have been enumerated in the BOSTON MEDICAL AND SURGICAL JOURNAL of July 16, and in the *Harvard Graduates' Magazine* of September, 1914. They need not be rehearsed now. Our purpose is to discourse, like the storm-tossed Trojans, about our departed comrade. *"Amissos longo socios sermone requirunt."* What sort of a man is it whose loss we mourn, or rather for whose example and companionship these many years we rejoice? He was big and strong, singularly well proportioned, and handsome. His blue eyes were keen but friendly. His countenance revealed strength, intelligence and refinement. His smile gave warmth and cheer. He had modesty, dignity, common-sense and unusual sagacity. He was high-spirited but he kept his temper. Under provocation, his voice became lower and gentler. He did an immense amount of work faithfully. He was efficient in emergencies but he did not wait for the rare occurrence of unusual needs, to serve others. The little duties and the little kindnesses were constantly and most graciously performed. One inferred his religion from his life.

He was a first-rate physician as well as surgeon, and he would have been eminent in his profession if he had never operated. The time came however, about fifteen years ago, when it was physically impossible for him to continue in general practise, so that he occupied himself with surgery exclusively, with brilliant success. His methods have been discussed elsewhere from a technical standpoint. What impressed the ordinary professional observer was his good judgment and thoroughness and the usually successful outcome. And, as was said of him at the meeting of The Massachusetts Medical Society on the day of his funeral, every patient became a friend.

His classmate, Prof. Hooper, describes him well, in the words of President Eliot: "A man of quick perceptions, broad sympathies, and wide affinities; responsive but independent; self-reliant but deferential; loving truth and candor, but also moderation and proportion; courageous but gentle; not finished but perfecting."

The world is better because he lived.

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## II.

### THOMAS MORGAN ROTCH, M.D.

BY CHARLES HUNTER DUNN, M.D., BOSTON.

THE death of Dr. Rotch on March 9, 1914, was a great shock to all of us whose close association with him had made us particularly interested in seeing his plans attain their full completion. His death marked the passing of one of that group of men who played conspicuous parts in the modern revolution of the practice of medicine. The pioneer workers in Pediatrics were but a small group of men, and among these, both as a teacher and a writer, Dr. Rotch had a wide influence upon his profession.

Dr. Rotch was born in Philadelphia on December 9, 1849; received his academic degree at Harvard in 1870, and his medical degree from the same institution in 1874, and served a term as house pupil at the Massachusetts General Hospital in the autumn of 1873. In 1874 he married Helen Rotch, the daughter of William J. Rotch and Emily Morgan of New Bedford. They had one son, Thomas Morgan Rotch, Jr., who was born on May 21, 1878.

At that period no young man's medical education was supposed to be complete without study in Europe, and Dr. Rotch spent two years studying in Germany, Paris and London. When he returned, there was no one in Boston whose practice was devoted exclusively to the diseases of early life. Disease in infancy and in childhood was not regarded as presenting differences from disease in adult life of sufficient importance to call for special knowledge. Dr. Rotch began his career as a general practitioner, but was soon attracted by the interest of the problems encountered in the struggle with disease as

manifested in early life. The earlier days of his work were marked by his earnest endeavors to separate his chosen specialty from the domain of the general practitioner, and to point out to his professional brethren the need of special knowledge in this field. His field of work was one in which a high death-rate had come to be taken for granted. Gradually, as time progressed and medical practice became more defined, pediatrics came to be recognized as a specialty, and Dr. Rotch was able to concentrate his energies on his chosen problems.

There was at this time little special teaching in pediatrics in the Harvard Medical School. In 1888 the University established a Professorship for the Diseases of Children especially for Dr. Rotch, his title being later changed to Professor of Pediatrics.

I shall assume that the work of Dr. Rotch as a teacher, writer, and organizer is sufficiently known to this audience to require but brief mention here. Among all his activities, I think he will always be known by his contributions to the subject of infant feeding. When he began to study and write upon this subject, our knowledge and practice were in a most chaotic state, and to him must be given the credit for the earliest exact work on feeding which was done in this country. He was the orginator of the Percentage Method of Feeding, which, while at first opposed by some, has finally come to be accepted by practically all pediatrists. I believe it is not an over-statement to say that he was the founder of modern scientific infant feeding.

The two great interests of Dr. Rotch's life were the development and organization of the pediatric department of the medical school, and the development and completion of the Infants' Hospital. He displayed marked ability as an organizer; and those of us whom he drew around him could not but catch his enthusiasm. We never ceased to wonder at his energy, and his capacity for the regulation of the smallest details. It was difficult to help him in his work, for he wanted to do everything and attend to everything himself. He never laid aside these interests, even in his last illness, and indeed died in harness. During the last days of his life, it was in vain we tried to persuade him to leave the management of things to others. Every day I had to give him a full account of "how everything was going," and it was difficult to persuade him that anything had been attended to without him. Only a few days before his death, at a time when we believed that at last he had resigned the management of the matters which interested him, and when any effort of mind or body seemed impossible, he insisted on telephoning from his bed to Dr. Morse about some small matter of departmental routine.

Dr. Rotch, early in his career, became convinced that the treatment of disease in early life was so distinct from that of disease in adults, that it could best be carried out in a hospital devoted exclusively to children. Later he found a marked difference in the hospital requirements of young infants and those of older children. The problem of nutrition in infancy was found to be of such great importance, that the nursing requirements for the carrying out of treatment are entirely different at that age, and that the conditions which a hospital for infants must meet are entirely different from those which prevail in a children's hospital. This led to the establishment of the Infants' Hospital, in its modest quarters on Blossom Street. It was the first hospital in this country to admit patients restricted to the first two years of life. Only those who have worked at the old Infants' Hospital can realize the enormous life-saving work which was carried out there under very inadequate conditions.

In 1902, Dr. Rotch's life was saddened by the death of his only son, who had just graduated from the University, and begun a business career. Tom Rotch, as the boy was known to his friends, had not been strong as a baby, and had indeed presented one of those very problems in which Dr. Rotch later took so strong an interest. I know that it was the study of his early life that first led Dr. Rotch's interest into the field in which he later attained so great a reputation. While Dr. Rotch never recovered from the blow of his boy's death, his finest qualities were never better shown than by the way in which he bore this bereavement. He surrounded himself with the college friends of his son, and threw himself with all the more energy into his professional work.

Dr. Rotch had many friends, and was greatly beloved by his patients. In the outburst of sympathy for him in his loss, a fund was given by his friends for the erection of a new infants' hospital as a memorial to his son. This movement has just ended in the completion of the new building near the Medical School.

Dr. Rotch had much to do with the development and administration of the Children's Hospital, but during the last years of his life it was in the new Infants' Hospital that his interests were centered. His plans were always far-reaching, he looked far ahead into the future. He possessed the imagination which could foresee the results of their fulfilment. I believe he was one of the first, if not the first, to foresee the group of buildings now surrounding the Medical School. He talked to me of this idea long before I ever heard it mentioned anywhere else. The one dream of his life was to see the new Infants' Hospital completed and opened, and to deliver the first lecture in its lecture room. After this his plan was to retire from all his other professional activities, and to devote the rest of his life to literary work, and to the management of the new hospital. It was in the director's room of the new building that he intended to pass his remaining years.

It is rather tragic that his hopes failed of fulfilment at the last moment. During his last years he overworked continually. The severe

strain imposed by the hopeless illness of his wife for four years was more than even his strong constitution could bear. He felt his strength failing, but did not say a word of this to anyone. To our anxious inquiries he always replied that he was feeling better. He concentrated all his energies on finishing his work, on seeing the new hospital completed, and on perfecting the organizing of his teaching department. The first acute breakdown occurred early in February, but he was soon up, and no one could restrain him from going to work again. His final illness began on February 24th, and a collapse on February 28th showed his condition to be hopeless. The new hospital received its first patient on March 3d, six days before his death. Although he failed to see the hospital open, I believe he was very happy at the last, for the building was so nearly completed that he had begun to realize the satisfaction of seeing his hopes fulfilled.

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## III.

### CHARLES PICKERING PUTNAM, M.D.

BY WILLIAM BRADFORD ROBBINS, M.D., BOSTON.

DR. CHARLES PICKERING PUTNAM has taken a prominent part in medicine in Boston in the past forty years. During this time we all have come in contact with him in some way or other. We remember him for some particular trait or act or deed. He will be generally known for the great work which he did, in what might be called *social* medicine. His life work may be said to have been to uplift the human race, to make his fellowbeings happier and better in mind and body. He laid down his life for his friends, and his friends were *us* all.

He believed that the greatest good could be accomplished by organization, and therefore we find him a leader in many societies, which have to deal with social and moral uplift. He was one of the founders of the Boston Society for the Relief of Destitute Mothers and Infants, and was its president from 1904 until his death. Since 1875 he had been connected with the Massachusetts Infant Asylum as physician, and for twelve years was president of the board of trustees of that institution. He was one of the earliest to become interested in the Associated Charities, and it was largely through his efforts that the society is now able to accomplish so much.

He was very active in the reorganization of the Boston pauper institutions. To quote from Mr. Joseph Lee's article:

"From 1892 to 1897 Dr. Putnam took a leading part in the very important movement for the reorganization of the Boston institutions for the care of prisoners, of the poor, and of poor, neglected and delinquent children, being on the special committee appointed by Mayor Matthews in 1892, chairman of the board of visitors of 1893-94, chairman of the standing committee on pauper institutions of the advisory board appointed by Mayor Quincy in 1896, a steady fighter for the reorganization bill of 1897. When the new system of separate unpaid boards of trustees was established he was appointed a member of the board of children's institutions, and was its chairman from 1902 to 1911, performing in that capacity a great and harassing, though invisible and unappreciated, service to his fellow-citizens.

"Dr. Putnam was among the earliest supporters of Dr. James R. Chadwick in founding the Boston Medical Library, of which he was an original member in 1875, an incorporator in 1877, and which he served upon important committees until his death. He helped to organize and carry on the Directory of Nurses. He was active in the campaign against tuberculosis and a director of the Mental Hygiene Association. He was one of the first to take up broad social questions from the legislative end, was the first experienced charity worker to enlist in the Massachusetts Civic League, and helped secure the establishment of the State Board of Insanity, the taking over of the Boston Insane Hospital by the state, medical inspection in the public schools of Massachusetts, playgrounds, better probation service, the juvenile court, better laws dealing with tramps, with drunkards, and many others."

Besides all these societies he was affiliated with many medical societies. He was president of the American Pediatric Society in 1898.

During all these years he attended assiduously to a large practise. He seemed never to tire, and no matter what time of the day or night he was called, he had always the same quiet thoughtful, calm, self-contained manner. No matter how busy he was, he seemed to have unlimited time to spend on the details of kindness, the little kindnesses which most leave undone or despise. He never appeared to be in a hurry, and left the impression that this visit was the only one he had to make. He seemed to know by instinct what would comfort most. I have seen him sit down on the floor of the nursery and work over some complicated toy for an hour at a time, so that in the morning when the sick child awoke he would find his toy all fixed and ready to be played with.

How much he loved the children was shown by the way the children loved him.

He had a great faith in therapeutics and his choice of drugs was adapted to suit the individual case with rare skill. He respected the idiosyncrasies of his patients, about drugs or other forms of treatment, but he was very firm when he knew that a certain course of treatment was essential. He was constantly studying to increase his knowledge of new drugs or new combinations of old drugs, which might give better results, or the same results in a less obnoxious manner.

His prescription books are filled with prescriptions which show his mastery of therapeutics.

With his keen sense of humor and kind heart he frequently accomplished what no medicine would do. When the case required some mechanical assistance, he was never at a loss. With the most crude home-made materials he would construct a complex apparatus. He was a born mechanic, and loved to work in his workshop over some useful article, seldom for himself. His office contained many simple and complicated devices to relieve pain and correct deformities. When in his last illness it caused him pain to lie down, he had a wonderful apparatus rigged up under his direction to support himself, an apparatus which he had devised to help one of his friends in a like predicament. I think that if he had had more time for the training and his eyesight had been better, he would have taken up surgery, he was so skilful with his hands.

One of the most striking of Dr. Putnam's traits was his pertinacity. No matter how difficult or apparently impossible the task seemed, he would never give up or be discouraged. I shall never forget the care and patience with which he worked over the case of a young mother who was bent on nursing her child. With an earlier baby the nursing had been intercepted by a breast abscess, and it appeared as if it were impossible to prevent the same thing happening again. The mother was disconsolate. He said that he believed that it was safe to go on nursing. He tried breast bandages, shields of all kinds, made an improved breast pump, and finally succeeded in quieting the inflammation and the nursing went on.

His resources seemed endless either for a broken toy or a broken heart.

Not content with giving so much time to the poor and the needy through his societies, he took the problems of all who came to him as his own. Rich or poor, their problems were his. He believed in organized charity but he gave his life to his own personal charity. The friend to the friendless and helpless, his office was filled with those who needed help or advice, for they knew that they would get an honest opinion, a kind word, a true friend, a helping hand if they came to him.

During his last illness I saw some of the cases that came to his office looking for their friend. I found a young girl whom he had talked to daily, for weeks, to encourage her in the work that she was doing; an old woman whose pills had given out, who said she came for more pills, but who really came to see him; young girls from his societies, who had practically no other friend in the world; and the tired mother of some six or eight children, who came to ask advice about her family troubles. He had seen them all for love.

He was young in his heart, and in his mind, and in his body. He often joked with me because I called a person old. "Why," he said "they're not much older than I am, and I'm not old!"

He was by inheritance a gentleman and a gentle—man, in the truest sense of the word, he lived. What his forbears have done for Boston is well known.

All that he did we cannot yet fully realize. Descended from great physicians on both sides of his family, he inherited a love of medicine, and a wonderfully keen medical sense, and he also inherited from them a love of service to the people.

Dr. Putnam will be known for his great work for social progress and social medicine, but we shall remember him for his persistent self-sacrifice in his daily work.

Thoughtful of his patients to the last, it was with difficulty that we could get him to discontinue the use of two telephones in his sick room. He knew that he could not get better, but there were few if any, who guessed it, when they heard his cheering words to them.

His last thought was for those he loved—his fellowmen.

## Original Articles.

### COMPENSATORY EXERCISES AS AN AID IN THE TREATMENT OF LOCOMOTOR ATAXIA.

By H. M. Swift, M.D., Portland, Me.

In considering the treatment of locomotor ataxia it should be remembered that we are dealing with a clinical condition resulting chiefly from a degenerative lesion of the nervous system. The seat of this degeneration is in the fibres of the posterior nerve roots and their prolongations into the spinal cord, the regions of the cord which are affected most strikingly being the posterior columns, perhaps more familiarly known as the columns of Goll and Burdach.

The principal function of the nerve fibres which pass upward in the posterior columns is the transmission of impulses which convey the sense of position to the brain and lower centres. So, if, for example, the fibres in the posterior columns which transmit these sensory impulses from the legs are destroyed, the patient is unable with closed eyes to know accurately the position in which the limb or segment of limb is placed if held flexed or extended at any of the joints.

The loss of position sense in ataxic cases may be often easily demonstrated by bending the great toe up or down and asking the patient to tell with closed eyes the position in which it is held. Usually if much ataxia is present this cannot be done correctly, although in the early

stages before much ataxia has developed the test may be negative.

Inasmuch as in locomotor ataxia the motor pathways are generally intact, there may be no actual loss of power, and strictly voluntary movements can be carried out. It must be understood, however, that no exact movement is entirely voluntary or consists merely in the contraction of one set of muscles, but that exactness is made possible only through the regulatory or inhibitory influences of co-working or opposing muscles whereby the muscles concerned are made to work in harmony and the component movement rendered steady.

This regulatory action is largely involuntary and is made possible by the fact that afferent impulses or messages are being continually sent in from the joints to the central nervous system, which inform the spinal regulatory or coördinating centres of the exact position of the limb during the various periods of time covered by any of its movements, while the centre in turn sends back regulatory motor impulses to the different sets of muscles involved so that the total result is a coördinated movement. But if now, as in locomotor ataxia, the pathways for position sense are destroyed, then the production of regulatory impulses is prevented or at least impaired, and the result is unsteadiness or overaction of muscular movement—in other words, incoördination.

To illustrate what is meant by the regulatory influence of associated movements let us consider the act of standing.

In normal standing the knees are not held ordinarily in a position of stiff and complete extension, but rather slightly flexed so that unless prevented there would be a tendency for them to sink down and give way under the body weight. Normally this giving way is prevented by the fact that whenever the knees tend to bend under the body weight, unconscious sensory impulses are sent in to the coördinating centres of the cord, indicating that a faulty position is being assumed, and are there converted into motor regulatory impulses, which in turn cause appropriate opposing contractions of the quadriceps. In this way the exact amount of extension requisite to normal standing is maintained. But when, as in advanced tabes, this regulatory function is interfered with and the tendency to sink down under the body weight is unopposed, the standing position is not so easily maintained and the patient must resort usually to rigid hyper-extension at the knees in order to prevent them from giving way.

Again, in walking the same principle is involved. Walking is made up of a number of nicely adjusted component movements. In describing this act the legs may be designated conveniently as the supporting leg and the swinging leg. At the beginning of a step one leg is swung forward, while the body weight is supported by the other leg; but soon after the swinging movement is begun the body weight is transferred from the supporting leg to the swinging leg, the transference being complete as soon as the swinging leg is firmly fixed upon the floor.

This transference of the body weight from one leg to the other is brought about by the plantar flexion of the foot of the supporting leg (now remaining in the rear) which rising in this manner throws forward the body weight upon the leg in front. The latter in its turn now becomes the supporting leg. The other leg in the rear is then ready for the forward swing which goes to make the next step.

In order that the act of walking be properly performed these various movements must be executed with perfect steadiness and accuracy. For example, when the weight is thrown forward from one leg to the other, it is necessary that the foot be raised exactly to the proper position and no further, because if the heel is raised too high the body weight is brought forward so far that the person loses his balance and tends to fall over. Normally this exaggerated movement is prevented because through the afferent nervous impulses one is made aware unconsciously of the exact position of the ankle joint during each instant of the act, and when the plantar flexion has been sufficiently carried out a message to that effect is sent to the cord along the fibres of position sense, which is there transformed into motor impulses to the opposing muscles (peroneals, tibialis anticus, and extensor longus digitorum). In this way the movement is kept within proper bounds. When, as in locomotor ataxia, this sensory pathway is destroyed, such a message cannot be sent to the muscles which normally would inhibit too great a plantar flexion, and when this movement is attempted the result is an exaggerated flexion with accompanying difficulties of locomotion, instead of a regulated flexion, as in normal walking. In locomotor ataxia the ability to transfer properly the body weight from one leg to the other is often lost and is particularly difficult to re-acquire.

Ataxia is thus seen to be dependent upon degenerative changes in the nerve tissue whereby the position sense is destroyed or impaired. It is probable, however, that associated with these degenerative changes is sometimes a more active irritative or inflammatory process in the spinal meninges, which gives rise to the pains and various crises by causing a constriction about the posterior roots as they pass through the pia enveloping the cord.

While it can hardly be definitely proven that the pains and crises are caused by irritation of the posterior roots by an acute process, therapeutic evidence of this is suggested by the fact that particularly in those cases with predominating pains the administration of salvarsan is most likely to prove of value. It is now considered proper by many to give salvarsan in all

cases of tabes, and there would seem to be no doubt that a certain proportion of these cases are improved and in others the process at least checked. But we cannot hope that salvarsan or any other medicinal agent will bring about the restoration of nerve tissue, which has actually undergone degeneration, any more than we can expect that a kidney which is the seat of a chronic nephritis can be made normal again.*

Now let us suppose a case in which salvarsan has been given, the acute process checked with relief of pains, but in which a considerable degree of ataxia still remains. Can anything more be done? It seems to me that the situation here is not unlike that in the case of the degenerated kidney; for in the latter condition we try to bring about compensation by making the skin and bowels take up a part of the work of elimination, and on somewhat the same principle in locomotor ataxia we may utilize the intact sensory fibres of other regions of the cord to take up the work which normally belongs to the posterior columns. Here, however, the analogy between the degenerated nerve tracts and the degenerated kidney ends, inasmuch as in the case of the diseased kidney we have in the skin and bowels compensatory agents ready at hand, while in the tabetic the compensatory function must be developed slowly by a process of re-education.

The method employed to bring about this improvement in function consists in the use of compensatory exercise treatment devised by Frankel, of Heiden, in 1882, and later modified by Foerster, of Breslau, the aim of which is to overcome the ataxia by training the eye and equilibrium sense to compensate for the lost position sense, and eventually to redevelop the position sense itself by increasing the capacity of the fibres in the posterior columns which have escaped degeneration.

In the original Frankel exercises more or less apparatus is used and the patient practices various movements requiring great exactitude in execution, such as putting the feet into small depressions in a board or touching in succession with the feet swinging wooden balls, the idea being that the coördinating ability acquired in this way will increase the efficiency of the whole motor system, including of course the acts of standing, walking, etc. It has been found, however, that improvement in standing and walking is not particularly hastened by these complicated exercises, but that the tabetic learns walking best by practicing walking, the standing by practicing standing. The employment of those other refinements is thus unnecessary.

In the Foerster modifications these more elaborate measures are omitted, and, instead, the motor disturbances seen in walking, standing, etc., are analyzed into their component parts and the patient taught to correct each of these elemental inaccuracies by a process of voluntary attention.

I shall now attempt to describe some of the details of treatment.

### WALKING.

By way of preliminary I would say that my analysis of the tabetic gait is not intended to be complete and that I have chosen merely four important abnormalities in order to illustrate the methods used for correcting them. These abnormalities are:—

1. *Hyperextension at knees.*
2. *Overaction of swinging leg with exaggerated dorsal flexion of foot.*
3. *Lack of plantar flexion of foot of supporting leg to throw the body weight forward.*
4. *Faulty position of hips with corresponding faulty posture of trunk.*

These defects vary considerably in different cases.

*Hyperextension at knees.* In normal walking and standing the legs are held in a position of slight flexion at the knees. In this position there is naturally a tendency to sink down under the body weight which is corrected by means of unconscious sensory impulses, which are transformed into reflex motor impulses and cause appropriate contractions of the quadriceps muscles, thereby maintaining the necessary opposing extension. In this way, by the unconscious interplay between the actions of the quadriceps and hamstring groups the exact amount of bending at the knees is maintained which is requisite to the normal walk. In tabes, on the other hand, owing to this lack of finer adjustment by means of the position sense, the tendency for the legs to give way can be prevented only by keeping them in a state of stiff and complete extension. In other words, the patient walks stiff-legged, using his legs somewhat as a pair of pegs after the manner of an automaton.

This adjustment is to a certain extent conservative, and it may be inadvisable to try to correct it during the earlier stages of treatment. Later the patient may practice slowly the movement of sinking and rising at the knees, always watching himself carefully and exerting himself most strenuously to avoid all jerks. This exercise is usually very fatiguing and at first it may be necessary partially to support the patient. Standing also may be practiced with the knees in a partially flexed position.

Further measures tending to correct this defect are included under other exercises mentioned later.

*Overaction of the swinging leg with dorsal flexion of foot.* Owing to the lack of inhibition on the part of the opposing muscles, the leg is swung forward with a jerk. The foot is held stiffly in a position of dorsal flexion and the heel strikes the floor with a thump.

* The Wassermann reaction and the examination of the spinal fluid are valuable aids in judging as to the probable efficiency of salvarsan treatment. For details as to this see papers by Spooner and Ayer, Boston Med. and Surg. Jour., Vol. clxx, No. 13.
Also, "Serology of Nervous and Mental Diseases," Kaplan.

To correct these defects the patient practises walking with the leg sharply flexed at the knee and with the foot pointing downward in exaggerated plantar flexion, thus touching the floor first with the toe and then coming down gradually on the whole foot. The proper motion in this exercise resembles that of the fore legs of a horse drawing a load up hill. The exercise is to be practiced slowly, aiming at perfect steadiness and carefully trying to avoid jerkiness. At the beginning of the movement the foot often leaves the floor with a little twist and this tendency should be perseveringly combated. In the majority of cases the foot is usually best held pointing directly forward, thereby correcting the frequent tendency toward extreme outward rotation. Whatever position is chosen for the foot it should not be allowed to deviate from that line.

Exactitude may be aided if chalk marks or painted spots are made upon the floor corresponding to the shape of the foot and in the exercises the toe be put down exactly upon the indicated places, the patient always endeavoring to correct with constant and painstaking attention any tendency of the foot to swerve.

*Lack of plantar flexion of supporting leg to throw the body weight forward.* Normally in the act of taking a step the body weight is thrown forward by the rising up of the rear supporting foot into a position of plantar flexion. In tabes the foot of the supporting leg is not raised but tends rather to be merely pushed along, while the upper part of the body, instead of being thrown forward, inclines to fall backward. This defect is to be overcome by having the patient practice to throw the body weight forward by means of careful attention to the movements of the supporting foot.

In the exercises previously described the defects are corrected by training the eyes to watch the various movements and to correct abberations of movement as they are seen to occur. In the next defect of which I shall speak compensation is effected not alone by visual means, but also by the training of the equilibrium sense.

*Faulty position of hips with corresponding faulty position of whole trunk.* In the tabetic the hips tend to protrude on the side of the supporting leg which is the opposite of the normal walk, and the balance is maintained with difficulty when the swinging leg is in the air. There is thus a tendency to fall over toward the side away from the supporting leg, which the patient naturally tries to overcome by walking with a broad base and by turning the feet outward in an extreme degree. The problem here becomes one of training him to walk while keeping the hip held in on the side of the supporting leg, because when this is done the trunk bends over away from the unsupported side and the equilibrium is more easily maintained. The attainment of this correct position may be aided at first by the physician's pushing in against the trochanters of the patient as he walks. Another defect in advanced cases is the tendency of the trunk to bend over forward, which is to be corrected by keeping the buttocks forward and this again may be aided by pushes or slight taps against the sacral region from behind. By such measures the patient may gradually learn to hold the hips in the proper position.

The tendency to fall in any direction may be in part corrected by developing the equilibrium sense so that it learns to respond more quickly than normally. Have the patient notice his tendency to topple over can be overcome in a measure by quickly pushing out the pelvis along the line in which he feels himself falling. Associated with this movement is a compensatory bending of the upper part of the trunk to the other side so that the balance may also be maintained by simply leaning in the opposite direction. This is, of course, the same principle by which the balance is maintained in the normal individual. Normally this maintenance of equilibrium is involuntary and conditioned by unconscious sensory impulses. In tabes these involuntary nervous processes must be supplemented by balancing motions which are more strictly voluntary and may be made to act as compensatory to the lost position sense.

It may have been noted that in some of the exercises the legs are in a position of over-correction, as when, for example, the swinging leg is held strongly flexed at the knee with the foot pointing sharply downward, thus over-correcting the natural tabetic tendency to walk with legs stiffly extended and with feet turned upward. The aim of this over-correcture is to obtain as a total result an approach to a normal walk in which the position of the limb is midway between the extreme position naturally adopted by the tabetic, and the extreme position of the exercise.

If necessary, the exercises may be practiced by aid of the support of another person; then successively with sticks, without sticks; and finally with closed eyes, the difficulty of the task being increased as fast as the progress of the case permits.

In the foregoing description only some of the more typical abnormalities have been considered the object being rather to illustrate a principle than to give an exhaustive description of all the exercise movements. The physician should always analyze carefully the defects of a given case and apply corrective procedures suited to the individual. With a trifling amount of ingenuity appropriate exercises may be easily devised. Care as to detail is imperative, and during the practice the attention of the patient is to be directed to the slightest inaccuracies.

After a certain amount of improvement in walking has been attained, more difficult coordinated acts may be tried, such as going up stairs (the body weight being kept well forward), then running, dancing and the like, the

aim not being to acquire excellence in such accomplishments, but only to render easier the act of walking.

These exercises may be often advantageously combined with some of the original Frankel movements which are especially useful as a preliminary if the patient is bed ridden. In practicing them the patient rests in a half reclining position on a firm couch with the back against a support, so that he may watch all parts of the legs.

A description of the movements may be found in many text books, but for convenience some f them are given below:

Slowly raise and lower whole leg from table carefully avoiding all rotation of foot.

Slide foot back and forth in flexing knee. The heel rests upon the table and the foot is held in a position of plantar flexion.

Same as above until knee is flexed, then the foot is raised from the table and the leg extended. Attention that movement is without jerkiness, that foot remains flexed, and that the leg does not rotate.

Place heel upon knee of other leg, then half way between knee and ankle, upon ankle, upon great toe. Same precautions as above.

Slide heel of one foot up and down upon the tibia of other leg, keeping foot in plantar flexion and avoiding rotation.

All these exercises are to be practiced first with eyes open, then with eyes closed.

For cervical tabes with resulting incoördination of the hands appropriate exercises have also been devised.

### STANDING.

In cases with far advanced ataxia standing is impossible, because the patient is unable to maintain extension either at the knees or at the hips. As a consequence of this the knees tend to give way and the trunk collapses over forward so that the person doubles up like a knife. In ordinary cases standing is possible, but rendered so only by rigid over-extension of the joints in question. Thus the trunk is bent over backward with corresponding protuberance of the abdomen, while the knee-joint is held stiffly hyper-extended. This hyper-extension of the knees and hips is in a measure conservative and in severe ataxia the patient may be allowed to retain this position during the early stages of treatment, inasmuch as the acquirement of the ability to stand in any manner whatsoever is a distinct gain and at the beginning this may be accomplished only with the maintenance of rigid over-extension, even this sometimes being impossible without the aid of support on both sides. While thus supported the patient must always be on the alert to combat the tendency to collapse by making voluntary extension of the muscles about the knees and pelvis, to do which it is necessary that he watch attentively the parts and make appropriate corrective movements whenever he sees himself giving way. Later as he becomes more and more proficient, the support should be gradually diminished and replaced by canes until eventually he becomes able to stand alone.

Where the ataxia is less extreme and the patient already able to stand without support the problem becomes one of tempering the rigidity of the extension by the cultivation of a certain degree of flexion of the opposing muscles. In such cases standing is to be practiced in a normally erect position, which will be somewhere between the backward over-extension of the trunk and the forward collapse. The knees are to be held slightly flexed as in the normal.

As in walking, so in standing, the equilibrium sense must also be developed and the patient learn to prevent himself from falling by pushing out the pelvis in the direction toward which he feels himself swaying. The use of the equilibrium sense is particularly valuable when he comes to practice standing with closed eyes.

After the patient has learned to stand reasonably well without support of any kind the difficulty of the exercise should be increased by having him stand with the feet close together and then on one foot. Finally all the exercises are to be practiced with closed eyes, the aim being to rely less and less upon the visual and more and more upon the equilibrium sense.

At first all exercises are to be practiced for only short periods of time, with frequent intervals of rest, because, as should always be borne in mind, the tabetic may have no subjective feeling of fatigue and in his early enthusiasm easily overdo and carry the work to a point injurious to himself. To prevent this the physician should watch the pulse and if it becomes rapid at any time have the patient rest.

At the beginning of treatment half hour seances, including intervals of rest, are ordinarily long enough. Later the exercise periods may be lengthened. Patients often wish to practice at home and this may be permitted, provided they can be made to understand that the exercises may actually retard progress if carried to the point of fatigue. For home work it is perhaps safest to prescribe periods of five to ten minutes' practice, repeated after long intervals several times during the day. As a matter of fact, home practice does not hasten improvement as much as might be expected. To be most beneficial the exercises should be done under supervision, because slight inaccuracies requiring correction continually arise, which escape the notice of the patient.

To be of marked benefit the treatment must be continued over long periods of time, varying from six months to a year. The method is not suitable for all tabetics, the more common contra-indications being optic atrophy, a heart lesion, poor general physical condition, and frequent pains or crises. Nor can one say absolutely whether the exercises will be helpful in

a given case. The fairest way perhaps is to propose to the prospective patient a few weeks' trial and if at the end of that time he is dissatisfied with his progress he may discontinue, although usually if the treatment is carried out even for this short period he becomes interested and willing to keep on.

In conclusion I would repeat that the compensatory exercise treatment is not suited to all cases of locomotor ataxia, and is to be combined with other measures directed to the improvement of the general health and often with anti-syphilitic medication.

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## DIABETES AND SURGERY.

BY EDWARD H. RISLEY, M.D., F.A.C.S., BOSTON,

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THIS paper has for its object a brief summary of our present-day knowledge in regard to glycosuria in its relation to surgery.

1. In what type of cases must we avoid surgery in diabetics?
2. What is the probable mortality from operations on diabetics?
3. Is the amount of sugar of prognostic value?

The statement made in most text-books that all but emergency operations should be avoided on diabetics and that there should be a very guarded prognosis, does not seem in the light of present surgical technic to be a warning that needs as serious attention as formerly.

The only way to reach a definite conclusion is to study the results that have been obtained after operations on diabetics and the causes of failure, in order to define the limits of surgical interference.

It is very often difficult or impossible to distinguish between temporary or non-diabetic glycosuria and true diabetes, this being notably so in the presence of surgical complications, and should we take the presence of sugar as an indication of the existence of diabetes in all cases there would be many patients who would die unrelieved of their surgical necessity.

Verneuil in 1884 said, "I hardly admit the separation, no one so far having shown clearly where glycosuria ends and diabetes begins. I have, in light of present-day facts, decided as a surgeon to discard the existence of an arbitrary division which does not present any practical utility. From the surgical point of view the presence of glucose in the urine, whatever its amount, is always a serious fact."

The classification of Smith and Durham (Guy's Hospital Report, Vol. xlix, pp. 343-432) seems to more nearly approach completeness and practicability than others hithertofore given. This (somewhat modified) is as follows: Our cases can be divided and more accurately studied if we class them as:—

1. Those cases in which glycosuria is caused by the surgical lesion.
2. Those cases in which it causes the surgical condition.
3. Those cases in which the two are independent and do not influence each other.
4. Those cases in which glycosuria is a harmful factor and adds to the danger of the already present disease or injury.

We must bear in mind in analyzing these cases that glycosuria may be transitory, *i.e.* due to the use of drugs such as morphia, or it may be the beginning of a true diabetes, the one passing imperceptibly into the other.

Class 1. Glycosuria is not uncommonly caused by the surgical lesion in cases of injury and sepsis. The amount of sugar is generally small (1 to 2.5%) and usually transitory. In ulcerated new growths the glycosuria is probably secondary to the sepsis present. Smith and Durham (*vide* above) instance several cases in which a gradual disappearance of sugar took place after the removal of a sloughing malignant growth. There are many instance in the literature in which glycosuria cleared up subsequent to operations for appendicitis, pyosalpinx, strangulated hernia, ovarian tumors, traumatic gangrene, etc. In such cases, therefore, surgery is indicated and demanded both in light of results obtained and the nature of the surgical lesion.

It may be argued that it is impossible to tell before operation whether the condition is one of transient glycosuria, dependent on the surgical lesion, or whether it be a true diabetes. This is a proper question to raise. But it has its answer in the surgical necessity of the cases and the low mortality statistics resulting from present-day technic.

Class 2. Phillips (*Lancet*, May 10-17, 1902) has written the most careful recent review of the cases reported in the literature on this subject. He thinks it doubtful whether diabetes can directly cause any lesion requiring surgical treatment except balanoposthitis and cataract. His belief in regard to so-called diabetic gangrene is that it is rather a gangrene occurring in a diabetic subject, the influence of the diabetes being indirect through the coincident arteriosclerosis or nerve degeneration, these being the result of the constitutional affection. Carbuncle, he believes, is to be regarded in the same light.

Should we differ from this opinion, we may regard diabetes as a direct cause of the surgical condition and therefore demanding surgical intervention. Mortality from operation in this class of cases is notably high but has been greatly lowered in recent years by the use of

newer forms of anesthesia, such as nitrous oxide and oxygen, local and spinal anesthesia to replace the more toxic chloroform and ether, rapid aseptic technic and careful pre-operative treatment aimed at the reduction of sugar.

Exact mortality figures in this type of cases are not at present available but it is possible to state that the risk of operation is justifiable provided the general condition of the patient and the diabetes can be first improved by preliminary treatment.

Class 3. This from the point of view of surgical prognosis and treatment is in a way the most important group, as it contains new growths, fractures and other injuries, such as genital injuries following childbirth, occurring in diabetics, and especially because the existence of the diabetes may at the time of the surgical emergency be unknown, as the disease may be intermittent.

Phillips has analyzed the results of operations on the face and mouth for malignancy in the presence of diabetes, and finds out of 16 cases 11 recovered, or 68.75% recoveries and 31.25% mortality. Of purely mouth and lip cases, 9 out of 12, or 75% recoveries.

In operations on the breast, of 15 cases 13, or 86.6%, recovered and 13.4% died. Both fatal cases died as a result of sepsis; one of erysipelas and one of sepsis in the drainage tract. In operations on the female generative organs, out of 24 operations performed on 23 patients there are five deaths, or a percentage of 76.25 patients recovering, and of successful operations 79.16%. In purely plastic operations the mortality was practically nil.

The results reported in operations on the male generative organs are very meagre. Of 6 operations on 5 patients, 3 died, giving an operative mortality of 50%. No special precautions had been taken in two cases against coma and the other was in the removal of a septic sloughing penis. Mortality statistics in this class of cases are probably much better than the figures indicate.

When we consider abdominal operations including hernia, appendicitis, colostomy for malignant disease, we find in 15 operations on 15 patients, 11 recoveries or 73.3%. This is a low percentage of recoveries as three of the cases in this series were practically moribund when operated. Three pancreatic cysts in diabetics have been drained, the patients recovering from the immediate effects of operation, but dying subsequently of diabetes some months later.

In operations on the extremities for aneurysm, neoplasm, crush, fracture, etc., 7 cases showed 3 deaths or 57.1% recoveries, 9 operations being done, gives a percentage of successful operations of 66.6.

The discussion of the question of the non-union of fractures in diabetics is an interesting one. Text-books teach non or delayed union to be expected. Smith and Durham report 5 cases of non and delayed union in 9 cases, the 4 other cases having perfect union within normal time. Phillips cites numerous cases of perfect union and believes that considerable doubt should be expressed that non-union is more common. Van Norden's (Pathologie des Stoffwechsels, Berlin, 1893, s. 416) observation on the decrease of lime salts in diabetes would indicate that it was advisable to administer the carbonate of lime to diabetics suffering fractures.

It seems evident, therefore, that we may generally expect union of fractures in diabetics, especially if we take the precaution to administer lime salts during convalescence.

Class 4. The question of gangrene and the results of amputation for that condition are interesting. It is beginning, at least, to be accepted today that diabetes is rarely the direct cause of gangrene, but rather it is to be considered secondary to arteriosclerosis in diabetics. The term diabetic gangrene is usually applied to gangrene of the lower extremities. A vast amount of literature has been published on this subject and the subject is further complicated by the fact that ordinarily senile gangrene is often accompanied by glycosuria. The best treatise on this subject is by Gussenbauer (Uber die Behandlung der Gangrän der Diabetes Mellitus. *Wiener Klinische Wochenschrift*, 1895, Band xlii, s. 487). He advocates diet and general treatment first. The condition of the arteries on both sides should be carefully investigated. If the pulse be distinctly present in the anterior and posterior tibial and in the dorsalis pedis, local removal of the diseased parts will suffice. If, however, the pulse be absent there, but be well marked in the popliteal, amputation below the knee may be performed provided the gangrene has not spread beyond the dorsum of the foot and that the leg is free from phlebitis and lymphangitis. Otherwise, amputation must be done through the thigh. If in doubt, amputation should always be done above the knee. St. Bartholomew's Hospital Reports for 1884-1899 emphasize the importance of observing the above directions of Gussenbauer, for out of 8 cases amputated for gangrene and done below the knee in the absence of dorsalis pulsation 6, or 75%, died.

Albuminuria is a serious complication. In Phillips' series all cases having it died. The presence of acetone or diacetic acid and an increase in the amount of ammonia excreted is of the utmost significance, and if these are found to be irreducible the prognosis is bad.

The old idea was prevalent that diabetes exerts an unfavorable influence on the per primam healing of wounds, but this apart from sepsis, does not necessarily follow. Perhaps it is well to make the guarded statement that with preliminary treatment of the diabetes before operation good results may be expected in the healing of wounds, but bad in untreated cases.

The question of the result of dietary treatment

before operation on prognosis is of utmost importance. In Phillips' large series there were 82.3% of recoveries in treated patients and 63.63% in untreated cases, a difference in favor of careful preliminary treatment of 18.66%. These facts are significant enough to be impressive.

Diabetes and sepsis: Extensive experiments by Bujund, Nicholas, and Karlinski show that sugar diminishes the virulence of microörganisms but increases their pus-producing properties. The factor of sepsis is therefore largely influenced by lowered vitality produced by the circulation of an abnormal amount of sugar, the presence of arteriosclerosis and of nerve degeneration producing trophic changes. Sugar directly lowers the vitality of the tissues and indirectly induces chronic vascular changes, both of which are exceedingly favorable to the development of sepsis.

Sepsis, on the other hand, may produce a temporary glycosuria, but nevertheless, this may later be found to be evidence of a diabetes which was quiescent and lighted up by the disturbance to the system incident to operation.

An interesting phase of this subject and one scarcely ever spoken of except by foreign surgeons, is otitis media and mastoid involvement in diabetes. Kuhn, Raynaud and Wolf consider that there is a special form of diabetes in which mastoid symptoms predominate. Frederick explains this by the fact that the mastoid condition is due to the existence of arteriosclerosis. Of 50 cases collected and reported by these authors, 17 developed acute mastoid disease, 11 developed slight mastoid symptoms and 22 had none at all: a percentage of 56 with mastoid involvement. This condition is not surprising when it is considered how often sepsis thrives in the presence of diabetes. Extensive deep cellulitis of the neck is liable to follow mastoid operation. This should by no means contraindicate operation however.

The following rules may be laid down in regard to operations on diabetics:—

(*a*) A thorough examination of the urine must be made in every case, especially for the detection of acetone and diacetic acid.

(*b*) The total amount of ammonia must always be estimated. No operation except of the extremest emergency should be performed if there is one gram of ammonia excreted in 24 hours, until this has been reduced to the normal amount, .75.9 gm.

(*c*) An operation should be postponed should there be acetone or diacetic acid, even if the amount of ammonia is normal.

(*d*) Much albumen in the urine is a contraindication to operation and even in small amounts is of bad prognostic import.

From a review of the foregoing data it will be seen that most of the major operations of surgery have been and can be performed with success on diabetics.

In Phillips' extensive series gathered from the literature the percentage of recoveries was 72.28, or a mortality of 27.72%. This, at first glance, seems a large mortality, but when the seriousness of the condition and the poor condition of some of the patients operated on is considered, this is not a high, but a very fair mortality. When such cases as strangulated hernia, extensive malignant disease and sepsis, which in themselves give high mortality, are omitted, we may expect a reasonably low death-rate, and general good results in this class of cases. The percentage of sugar is no criterion, as fatal results have followed from coma when sugar was temporarily absent and cases with large amounts of sugar have often recovered.

The presence of glycosuria should never deter the surgeon from performing any operation of emergency.

Other cases should not be operated in which acetone, diacetic acid and ammonia cannot be reduced by preliminary treatment.

A mortality of 20 to 30% is to be expected in this class of cases.

The use of an anesthetic other than ether and chloroform, careful dietary treatment before operation, the prevention of sepsis and rapid technic will still further reduce the mortality.

## THE DIFFERENTIATION OF HUMAN AND COWS' MILK BY COLOR TESTS.

BY RICHARD S. EUSTIS, M.D., BOSTON.

AT the suggestion of Dr. Fritz B. Talbot I have investigated several comparatively new reactions for the easy identification of cows' milk and human milk. Two of these depend upon the well-known fact that breast milk is normally less acid than cows' milk. The range of acidity falls within the field covered by the color changes of neutral red, which is an indicator changing from red in acid to yellow in alkaline solution. However, the normal colors of red and yellow are obscured by the white opacity of the milk, so that fresh cows' milk becomes a deep strawberry red and breast milk a duller, brownish or brick red. Furthermore, if ether is added in the proportion of five to one, the cows' milk remains deep red with the supernatant ether slightly red, while the breast milk becomes a pale orange with the ether yellow instead of red.

Moro[1] has described the first part of this test and determined that it is due to the reaction of the milk. For instance, fresh breast milk kept at room temperature gradually becomes acid. Before any change can be detected by smell or taste, the color with neutral red loses its brownish hue and soon becomes a strawberry red, indistinguishable from that due to cows' milk. Also, as Bauer[2] has stated, it is no longer decol-

orized by shaking with ether. I have found this change to be a gradual one with no definite end point. Bauer gives 38 hours as the limit of time which breast milk can be kept at room temperature before giving the cows' milk reaction." According to my tests the change of color had progressed far enough to be detected in 18-24 hours, and at the same time the milk acquired the power of retaining its color in the presence of ether. If the milk is kept on ice, however, the development of acidity is much slower and the change to the "cows' milk reaction" is correspondingly delayed. I have found a normal "breast milk reaction" in such milk 48 hours after the collection, and undoubtedly if greater care had been taken in the bottling it would have lasted still longer.

Neutral red, although primarily a colorimetric indicator, is also a stain, and if a drop of fresh milk is mixed with it on a slide, then warmed and examined under the microscope, the neutral fat droplets will be found colored yellow. The casein masses which appear as a result of warming, are red. The action of heat is necessary to make the stain penetrate the fat droplets, and even then many of them will remain unstained. As the milk ages the neutral fat gradually changes to fatty acid and stains red. Thus this microscopic method can be used as a check on the test tube method, but is rather too delicate as fresh drawn breast milk will show a few red droplets after it has stood one hour at room temperature. Cows' milk invariably contained some red droplets by the time it reached the laboratory.

A second stain which may be used in much the same way is Nile blue sulphate. This is not a colorimetric indicator like neutral red, but is a blue staining oxazine base, which in aqueous solution is partly oxidized into a red oxazone. The blue base does not stain neutral fat but does unite with fatty acids to form a blue soap. The red oxazone is soluble in all liquid fat, whether neutral or acid, and stains the droplets red. The blue stain of the base, however, is stronger than the red oxazone, so that fatty acids appear blue and neutral fats red. Furthermore, the red oxazone is soluble in ether and can be extracted by it from a watery solution. The oxazine base retains its blue color in the presence of ether only when the reaction is acid. If an alkali is added it turns white, only to regain its color again on the addition of an excess of acid.

Friedenthal[3] in 1911 used this stain in aqueous solution to tell whether a suspected milk fat contained pure neutral fat or whether it had partly changed to fatty acid.

Bauer[2] in 1912 discovered a difference in behavior toward this dye of breast milk and cows' milk. One drop of a 0.25% aqueous solution of Nile blue sulphate colors 2-3 c.c. of breast milk a deep blue, but the same amount of cows' milk a lighter robin's egg blue. The two colors are very distinct and cannot be confused.

This difference in color, however, does not depend on the reaction of the milk, but solely on the percentage of casein. For instance, the green blue color of cows' milk is given equally by skimmed milk, whole milk, and 32% cream. The blue of breast milk appears also regardless of the amount of fat. But 32% cream diluted with water until the fat is 4% and the casein 0.4%, gives a blue color indistinguishable from that due to breast milk. Furthermore, if the milk is curdled by warming, the casein masses are seen under the microscope to stain green. They are much more numerous in the cows' than in breast milk.

The reaction of the milk has nothing to do with the greenish color. Thus, cows' milk made slightly alkaline with soda bicarbonate still turns green with Nile blue, and breast milk made slightly acid with diluted sulphuric acid still turns blue. The behavior of the two milks when shaken with ether is, however, entirely dependent on the reaction, as the following table shows.

| | NILE BLUE. | AFTER SHAKING WITH ETHER | |
|---|---|---|---|
| | | MILK | ETHER. |
| Soda bicarb. solution | Blue | Colorless | Reddish yellow |
| Dilute sulphuric acid | Blue | Blue | Pink |
| Fresh cow's milk | Greenish blue | Greenish blue | Pink |
| Fresh cow's milk, soda bicarb. | Greenish blue | White | Reddish yellow |
| Fresh breast milk | Blue | Bluish white | Reddish yellow |
| Fresh breast milk, suphuric acid | Blue | Blue | Pink |

Inasmuch as the power to decolorize with ether is directly dependent on the alkalinity of the fluid, this test also may be used as a means of judging the age of breast milk. It is of about the same value as the test with neutral red, both showing a change after the milk has been kept about 24 hours at room temperature, or 48-72 hours on ice.

If a drop of fresh milk, either cows' or human, is warmed on a slide with a drop of Nile blue and examined under the microscope, no blue droplets are seen, the great majority are reddish, while a few are unstained. As the milk ages and the neutral fats begin to change to fatty acids, blue droplets appear and increase rapidly in numbers, while others take all sorts of intermediate hues between red and blue. Finally, in sour milk, all the droplets stain blue.

In practice the two tests are used as follows: to 1—2 c.c. of the milk in a test tube is added 1 drop of a 1% solution of neutral red. A reddish brown color denotes fresh, "usable" breast milk, a strawberry red cows' milk or sour breast milk. If the milk is then shaken with five times its volume of ether, a fresh breast milk will decolorize, cows' milk or sour milk will not. A precisely similar test may be carried out with ¼% aqueous solution of Nile blue, except that breast milk colors blue no matter how old, and cows' milk greenish blue. Hence for determining whether a given milk is human or cows' the Nile blue is the better test, and is delicate enough to detect 1 part of cows' milk in 9 parts of breast milk, provided that there is known breast milk present for comparison. For detecting the age or usability of known breast milk there is little choice between the two.

With neutral red there is a change in color, and ether does not decolorize the fluid, after 18°—24° at room temperature, or 48°—72° on ice, depending upon the care with which it has been collected and bottled. Nile blue always remains blue, but loses its ability to decolorize with ether at about the same time. The microscopic test may be used as a check upon the test tube method but is not to be depended on by itself as the chemical change from neutral fat to fatty acid proceeds too irregularly.

There is a third reaction for the separation of human and cows' milk which I have also tested. Engel and Turnau[4] in 1911 discovered a difference in the behavior of the urine of breast and of bottle-fed infants when it is warmed with a 2% silver nitrate solution. Both urines develop a white precipitate which in the urine of breast fed babies turns brown and then black. This reaction has been investigated by a number of others and is now thought to depend on the excess of chloride in cows' milk over human milk. Hence less chloride is excreted in the urine of breast-fed babies, and consequently after all the chloride available has been changed to silver chloride there is still a surplus of silver nitrate which is then acted upon by unknown reducing substances in the urine and changed to metallic silver.

Tugendreich[5] applied this same test directly to the milks and found a distinct difference in their behavior. If equal parts of breast milk and 2% silver nitrate solution are boiled together the mixture will take a rich café au lait color. Cows' milk gives only a dull brownish or sometimes a pale violet. This is probably also a chloride reaction depending for its color change on the action of reducing agents in the milk upon an excess of silver nitrate.

I have confirmed this reaction with a number of different breast milks and have always found their separation from cows' milk easy. Furthermore, I could detect the addition of one part of cows' milk to three parts of breast milk, provided that there was known breast milk at hand for comparison. Dilutions with smaller amounts of cows' milk gave uncertain results. As was to be expected, the age of the milk made no difference in the reaction. Hence, although Tugendreich's reaction is useful as far as it goes, it is not to be compared with either the neutral red or the Nile blue test in the amount of information to be obtained from it.

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## RECOVERY FROM COCCIDIOIDAL GRANULOMA.

BY S. B. WOLBACH, M.D., BOSTON.

IN response to a number of inquiries, by letter and indicated in published reviews of coccidioidal granuloma, the following brief notes are written concerning a case briefly reported by me in a study of the cultures in 1904. (*Journal of Medical Research*, Vol. XIII, No. 1.)

The case was one of coccidioidal granuloma as was proved by the pathological and cultural findings. It is hardly necessary in this day to go into the classification of this disease. Some confusion was introduced by Ricketts, (*Journal of Medical Research*, Vol. VI, No. 3). He brought together under the one heading "Oidiomycosis" a series of cases which we now know to be due to at least three different organisms, namely:—

(1) True blastomycosis or specifically, Torula infection. These cases have been extremely rare, and so far as I know none have been reported in man from this continent, with the possible exceptions of the two cases reported by Rust and Farnell (University of California publications in pathology, Vol. II, No. 5, June 21, 1912). Both of these cases terminated in meningitis and were classed as Oidiomycetic by the authors. From the appearance of the organisms, in the sections

sent to me and from the gelatinous character of the lesions due to zoöglia formation described by the authors, I am inclined to believe that these cases were true blastomycosis. In the absence of cultures it is of course impossible to be positive.

(2) Cutaneous and systemic blastomycosis, so-called, in which the organism reproduces in tissues by budding and in cultures has a mould-like growth. Under exceptional instances there may be growth by budding in cultures.

(3) Coccidioidal granuloma in which the organism grows in tissues by endogenous sporulation. On culture media it grows as a mould-like fungus, never by budding.

Blastomycosis, so-called, and coccidioidal granuloma have been reported almost exclusively from America. Over a hundred cases of the former have been reported. In a recent summary by W. J. McNeal and R. M. Taylor, (*Journal of Medical Research*, Vol. XXX, No. 3, 1914) 24 cases of coccidioidal granuloma have been collected. As shown by these authors the name, coccidioidal granuloma, should be preserved for this third type of infection and the name Coccidioides immitis, proposed for the organism by Rixford and Gilchrist, (Johns Hopkins Hospital Reports, 1896, No. 1) should be preserved, in spite of the fact that the organism was first believed to be a protozoön. It is still necessary to emphasize that Coccidioidal granuloma is a distinct disease and is not to be confused with the cutaneous blastomycosis and the systemic infection sometimes produced by the organism of cutaneous blastomycosis. The summary of McNeal and Taylor is so complete and so recent that nothing can be added to their list. They confirm observations of mine which have an important bearing in the classification of the parasite, namely, that the spheres in tissue develop directly from the "septate mycelial thread," *i. e.* from segments of the mycelium and not from the chlamydospores. They also for the first time succeed in obtaining, in cultures under anaerobic conditions, reproduction by endogenous sporulation.

This case, a woman, was a patient of Dr. William P. Bolles of Boston, who has supplied the following history:

"Previous to 1903 she had travelled a good deal both on and off the beaten track—Europe, India, Japan, etc. In 1901 or 1902 she made her last long trip to California and Mexico. She has had a number of unrelated and minor troubles and for many years, eczema with intense itching, scattered and frequent boils, chronic nasal catarrh (ethmoiditis) and mild but persistent rheumatism, etc. She was operated upon for strangulated hernia in 1899.

"Although she had suffered off and on from boils for some years before, she only spoke of them casually, and my attention was not called to them until 1902 when she applied to me for treatment. There was nothing peculiar about the course of the furuncles except that some did not discharge, and others, when opened, yielded a thin necrotic material and healed slowly.

"In 1903 two slowly progressive swellings appeared on her head, one on the right side of her forehead at about the line of the hair, the other about an inch above the outer end of the left eyebrow. They were about an inch in diameter, smooth, rather flat and nearly round; at first hard-like periosteal thickening, afterwards they softened in the middle. The one on the right side especially presented a circular edge of bone around the central softening. She declined for several months to have any surgical treatment either for these or for some "boils" under her arm. The cranial nodes were not very tender or painful.

"During the summer of 1903 she was not in my care but had a prolonged x-ray treatment which did not appear to have any effect on the course of the disease. During this time the swelling on the left side of the head burst subcutaneously and its contents filtered downward into the eyelid causing much edema and closing the eye. There were two smaller foci on the scalp, one behind the ear about one-quarter of an inch in diameter.

"In January, 1904, I operated, opening and curetting out all the nodules. They consisted of necrotic tissue with brownish or grayish pus, some granular bodies like miliary tubercles and inflammatory thickening. The mass over the left eye was mostly fluid. Under the two principal swellings, those on the forehead, the bone was entirely disintegrated and the holes about an inch in diameter like trephine openings with smooth perpendicular walls reached to the dura, when the soft mass had been removed with a curette. The dura was not involved. At the same time the nodule under the left arm was curetted and thoroughly cleaned out.

"Recognizing the unusual character of my patient's trouble Dr. Wolbach, at my request, was present at the operation and obtained cultures directly from the lesions and subsequently from rabbits inoculated by Dr. F. B. Mallory to whom tissues were sent for diagnosis.

"Recovery was slow but complete.

"In March she had lobar pneumonia from which she recovered slowly. Specimens of the sputum and urine were sent to Dr. Mallory who was unable to find any organism of coccidioidal granuloma in them. Clinically the case was one of pneumococcus pneumonia. The history of the patient subsequent to operation is as follows: In December, 1911, she had an acute obstructive jaundice. I operated and removed a small calculus from the common duct. The recovery was rapid and uneventful.

"At present she is in a fair condition excepting chronic 'rheumatism'. There has been no return of lesions similiar to those which proved to be coccidioidal although there have been a few furuncles which healed spontaneously. In the last few years the eczema has diminished and the furuncles have become less troublesome. She is now about seventy-five years old, is active for her age and attends to her numerous intellectual and charitable interests."

## SUMMARY.

This case is one of two cases in the series of 24 recently collected by McNeal and Taylor which have recovered. The other case which recovered was localized in the leg and recovery followed amputation. It is the only case which has occurred in a woman. It is of course im-

possible to prove that the patient does not still harbor the parasite possibly in encapsulated lesions such as occur in tuberculosis. The patient unquestionably showed considerable resistance to the infection as the slow progress of the original lesion indicated. For all practical purposes she is cured, and has remained free from the disease for a period of ten years although subject to ordinary furunculosis.

## Clinical Department.

### THE ALCOHOLIC INJECTION OF THE INTERNAL BRANCH OF THE SUPERIOR LARYNGEAL NERVE.

BY IRVING SOBOTKY, M.D., BOSTON.

*Laryngologist, Long Island Hospital and Berkeley Infirmary; Assistant Laryngologist, Mt. Sinai Hospital.*

A MORE distressing picture than that presented by an advanced painful tuberculous laryngitis is hard to find. The patients have such exquisite pain in attempting to swallow that they often refuse food. As tuberculous laryngitis is almost invariably secondary to phthisis, a disease where forced feeding is essential, it is easy to recognize that the lessened nutrition materially hastens the outcome.

Pain on swallowing may appear early and is present when any part of the upper aperture of the larynx is involved in the tuberculous process. Involvement of the epiglottis renders the prognosis more dubious and the symptomatic treatment less satisfactory. In such cases the swallowing of solid food causes pain, while in tuberculous affection of the arytenoid region, the swallowing of fluids gives pain.

Ulceration of the posterior wall of the epiglottis or of the arytenoid cartilages produces the most severe pain but infiltration of the muscles or perichondritis can also produce pain.

Various anodynes may be applied to the larynx to render feeding more comfortable. Cocain of 5% strength, novocain, or beta-eucaine may be applied or sprayed on the larynx shortly before meals but orthoform is more advantageous and the effect lasts longer. However, all these anodynes give only fleeting relief and the pain returns in twenty minutes to two hours after application. The blocking of the internal laryngeal nerve by injecting it with alcohol, gives the greatest and most permanent relief to these unfortunate sufferers.

The superior laryngeal nerve is the sensory nerve of the larynx. It is a branch of the pneumogastric and arises from the middle of the inferior ganglion of this nerve. It descends behind the internal carotid artery, between the middle and the inferior constrictor muscles, and divides into the internal and external laryngeal nerves. The internal nerve penetrates the thyro-hyoid membrane and supplies the mucous membrane of the larynx. The branches of this nerve form plexuses beneath the epithelial layer of the mucous membrane, end in bodies similar to the taste buds of the mouth, and are surrounded by ganglion cells. These are fewest in the vocal cords. The internal laryngeal nerve is accessible for injection at the point where it pierces the thyro-hyoid membrane.

*Technic.* Place the patient in a recumbent position. Using the usual aseptic precautions, locate by pressure the tender spot where the nerve pierces the thyro-hyoid membrane, usually at the upper edge of the thyroid cartilage and one-third the distance from the outer edge. Introduce a somewhat blunted needle about one and a half cm. into this point at right angles to the skin. Should the patient cough, the needle is in the lumen of the larynx and must be withdrawn. He must be forbidden to talk or to shout and told to signify ear pain by raising his hand. If the introduction of the needle has produced no discomfort, turn it upward and outward toward the ear, and if this does not produce intense pain move the needle cautiously in various directions until the pain, referred to the ear, is produced. The instant the patient shows he is in pain, push the piston of the syringe slowly and allow only one or two drops of the 85% solution of alcohol to escape. If this augments the pain inject one to one and a half c.c.

In successful injections there is little inflammatory reaction about the site. The pain on swallowing disappears and does not return for anywhere from ten days to three months. If both right and left internal laryngeal nerves are to be injected, as is usually necessary, it is best to wait two or three days between injections.

Some laryngologists use a ½% solution of cocaine with the alcohol, as this mixture diminishes the pain of the injections. However, patients have had so much pain they cheerfully stand the temporary discomfort of injection.

*Untoward Results.* If the needle is too far back, the superior thyroid or the external carotid artery may be pierced. If too low, the thyroid cartilage; if to high, the hypoglossal nerve. If the alcohol gets into the larynx it produces a local inflammation that adds to the patient's discomfort for a short time. Should the alcoholic injection fail to relieve the pain, it can be repeated in two or three days. It is perhaps needless to say that if the ulcerations are located at parts not supplied by the nerve a good result cannot be hoped for by this treatment. Methofer reports 17 tuberculous laryngitis cases, with painful deglutition, treated by alcoholic nerve injections. All except one were free from pain within 24 hours. The duration of relief varied from five days to three months. Roth of

Bad Reichenhall, R. Hoffman of Munich and H. Horn of San Francisco report good results.

The author has not had as much success as his colleagues quoted above, but can report encouraging results only. The cases given below were picked at random, as this would seem fairer than to report only the cases where the results have been entirely favorable.

CASE 1. Mr. A., seen at the clinic of Prof. Bruhl, Berlin, June, 1911. Aet. 40, diagnosis, advanced pulmonary tuberculosis, tuberculous laryngitis. Was aphonic, complained of exquisite pain when attempting to swallow and had dyspnea. The larynx showed ulceration of the arytenoid region and of both vocal cords. The right internal laryngeal nerve was injected with alcohol; four days later the left nerve was injected. Seen one week after the first injection. Patient said he was much relieved and could swallow food without discomfort. Two weeks later the laryngeal condition was unchanged. Not seen again.

CASE 2. Mr. C. Seen at Long Island Hospital, Boston, May, 1914. Aet. 24, diagnosis, advanced pulmonary tuberculosis, tuberculous laryngitis. Examination of the larynx revealed ulceration of the interarytenoid region, edema of both arytenoid cartilages and erosions of the vocal cords. The left internal laryngeal nerve was injected with alcohol. Seen again on June 4. He said he had been very comfortable since the injection and had only slight pain on swallowing. He asked to have the right nerve injected. This was done. The next two days he felt very uncomfortable and complained of pain and burning on the injected side. Two weeks later he said the last treatment had been of no benefit and refused further injections.

CASE 3. Mr. G. Seen at the Mt. Sinai Hospital, Boston, Aug. 1, 1914. Aet. 32, diagnosis, advanced pulmonary tuberculosis, tuberculous laryngitis. He gave a history of a throat operation at the North Reading Sanatorium seven weeks before. Examination of the larynx showed the entire mucous membrane pale, with here and there, patches of mucus adherent. The middle portion of the epiglottis was missing, leaving a V-shaped depression. The surface was comparatively clean. Both arytenoids were swollen and infiltrated. The vocal cords were ragged but there was no actual ulceration. He complained of pain on swallowing. The right internal laryngeal nerve was injected with an 85% solution of alcohol. On Aug. 22 he said he had been free from pain for four days following the injection. One c.c. of alcohol was again injected into the right nerve. On Sept. 5 he said he was free from pain for a week following the second injection. At this time his general condition was very poor and the end was apparently near. However in view of the relief afforded him by the previous injections an attempt was made to inject the left nerve. This was not completed because of the weakness of patient. Death occurred two weeks later.

The writer wishes to express his thanks to Dr. Richards of the Long Island Hospital and Dr. Arkin of the Mt. Sinai Hospital for placing the cases at his disposal and for permission to report them.

# Medical Progress.

## SEVENTH REPORT OF PROGRESS IN ORTHOPAEDIC SURGERY.*

BY ROBERT B. OSGOOD, M.D., ROBERT SOUTTER, M.D., HERMANN BUCHOLZ, M.D., HARRY C. LOW, M.D., MURRAY S. DANFORTH, M.D., BOSTON.

(*Concluded from page 59.*)

### CONGENITAL DEFORMITIES.

*Congenital Dislocation of the Hip.*—Lance[35] states that the consensus of opinion in the last decade has favored attempting reduction not earlier than the second year and preferably before the seventh year and not after the ninth. Lance's own opinion, based on cases reduced by himself and others earlier than the second year, is not in conformity with this. He believes that as soon as the diagnosis is made reduction should be attempted.

[Ed. Note.—We have believed that forcible reduction and retention in plaster were best not attempted before the second year for the following reasons: 1. There is less danger of injuring or displacing the epiphysis. 2. Fixative dressings for long periods are not easy to apply or to retain before two years. 3. Manipulation is safer after two years on account of the firmer texture of the bone after some weight-bearing. In the experience of one of the editors in three cases under two years in which simple abduction and traction had been employed, spontaneous reduction had occurred.]

Gangolphe and Plisson[36] give detailed histories and radiographic findings in eight cases of what they call latent congenital subluxation of the hip. The symptoms not appearing until the age of 25 to 30 are those of some form of arthritis or coxalgia, and they believe that the Roentgen rays show this latent tendency to dislocation, causing great susceptibility to strain and the development of an irritative arthritis because of the instability. In their hands the avoidance of fatigue and the strengthening of the muscles about the hip joint by special exercises has been sufficient to cause a disappearance of the symptoms.

*Congenital Forward Dislocation of the Knee.*—Rechmann[37] has reviewed fifty-nine reported cases of congenital forward dislocation of the knee and adds two more from the clinic of Prof. Riedinger in Würzburg. There are three stages, 1. Genu recurvatum. 2. Subluxation with lack of power to flex the knee. 3. Forward dislocation of the tibia on the femur. The most striking feature of all the stages is the power of hyperextending the knee, the patients being able frequently to touch the abdominal wall with the toes. The treatment consists in reducing the deformity; in extreme cases lengthening the patellar tendon is necessary. Fixation is fol-

lowed by ambulation in a brace maintaining the corrected position.

Ebert[38] calls attention to the necessity of differentiating between cases of congenital dislocation of the shoulder, epiphyseal separations, and the traumatic (obstetrical) dislocations. The characteristic attitude in which the arm lies in congenital dislocation is that of "birth palsy," *i.e.* adducted across the chest and strongly rotated inward. Upon abduction and outward rotation the slip of reduction is felt, the dislocation recurring as the arm falls. In cases seen early, reposition and fixation in the position of abduction and external rotation is sufficient. Later cases may require quilting of the capsule or osteotomy of the acromion and of the humerus, with outward rotation of the lower fragment.

*Free Fascial Transplantation.*—Kirschner[39] who was the first systematically to use free fascia flaps has written an important and exhaustive paper in which he discusses the results of the use of free fascia in his own and other surgeons' hands. He is still much impressed with the usefulness of the method. Some of its advantages may be summarized: 1. Its availability. Kirschner believes in autoplastic grafts. 2. Its tendency to heal without reactions even under unfavorable anatomical conditions. 3. Its prolonged and perhaps permanent life in its transplanted position. At length Kirschner discusses the details of its use, the most important being. 1. Repairing tendons. 2. Substitution for articular ligaments and as artificial ligaments to maintain corrected positions of the foot, etc., in poliomyelitis. 3. As restraining bands to prevent dislocations of joints, the patella, or slipping tendons. 4. As interposing flaps in attempts to mobilize stiffened joints. 5. To cover amputation stumps. 6. To reinforce plastics for herniae of abdominal or thoracic walls and to strengthen or replace the dura mater.

[Ed. Note.—There seems to be little doubt that transplantation of free fascia, certainly autoplastic and possibly homoplastic, will continue to be increasingly employed with success. In our own hands it has proved a most satisfactory material, perfectly tolerated by the tissues into which it has been implanted.]

Giertz[40], Hofmann[41], and Lewis and Davis[42] all report successful results with extensive fascial implants in the substitution of tendons and of the plantar fascia of the foot.

### JOINT SURGERY.

*Arthroplasty.*—In earlier reports we have devoted considerable space to the subject of arthroplasty and the reports of successful cases. We believe the subject to be of great importance. It is more possible at present to review end results and to obtain a somewhat more judicial consensus of opinion.

Brocq[43] in a long article has reviewed the results of various methods of treatment carried out in different clinics for vicious ankylosis of the knee. He considers that when the angle of flexion is less than 90° resection is usually advisable. He thinks there is no case on record which is above criticism which proves that a permanently useful new joint can be obtained by the method of total graft. He is still sceptical but hopeful concerning the formation of useful joints in the knee by the reshaping of bone ends and the interposition of flaps of tissue or other substances.

Helferich's[44] review of the subject of arthroplasty, or as he called it before the last International Congress, "Operative neoarthrosis," is also of great value. The description of the technique offers nothing especially new, and the indications for the operation are those laid down by most careful surgeons who have had experience with these procedures. Helferich lays special stress on the wisdom of waiting for a long time after an infectious process has been active before attempting arthroplasty. "One cannot wait too long." He has collected about 300 published cases in many of which the process leading to the ankylosis had not been sufficiently healed to warrant the operation. Of these three hundred, 120 were of the elbow, 75 of the knee, 49 of the hip, 20 of the jaw, and small numbers of most of the other joints. Many of the elbows are satisfactory. The knee operation he considers still in the experimental stage in spite of some individual very encouraging results. Some of the hip cases he considers have been greatly improved and he believes that the shoulder and the isolated ankylosis of the patella offer favorable opportunities. The impression which is left from the review is that a new field has been opened, but that especially in the knee joint, where the greatest need for successful arthroplastic operations exists, there has resulted so far, when the cases are carefully sifted, the least general measure of success.

We have not before reviewed a very careful and helpful piece of research work done by Allison and Brooks[45]. Their quite long series of experiments on dogs was undertaken to determine the tissue changes taking place in joints as a result of the interposition of substances intended to favor mobility. The results which they observed from the use of different substances are most interesting. I. Cargyle's membrane. This persisted only ten days and was of no use in preventing fibrous union. II. Free fascia. Persisted for a long time, but not in a continuous layer. Where parts were destroyed islands of fascia were left, about which the new adhesions between the joint surfaces formed. In two cases in which the fascia entirely disappeared there were no adhesions between the denuded surfaces. III. Pedunculated fascial flaps acted in the same way as free fascia, but the pedicle formed an extra restricting band. IV. Chromicized pigs' bladder (Baer) persisted

longer but caused a marked local reaction and may have been the cause of the considerable adhesions of fibrous tissue that formed and in every instance of its use caused a more or less firmly united joint. V. Fascia impregnated with metallic silver was not in the least irritating, persisted well, and in each case the denuded bone surfaces were covered with a connective tissue layer. Very few adhesions were present and the new bone formation was very slight.

[Ed. Note.—The work of Allison and Brooks is purely experimental on animals and does not attempt to show any functional end results, but it is surely most suggestive and we shall look for later reports of end results of the trial of this method in human cases.]

Fasano[46] eight years ago replaced a patella destroyed by an old osteomyelitis by a flap of tendon cut from the quadriceps and turned down raw side out and sutured. He reports the end result is still excellent and that similar operations on dogs have given equally good and durable results.

### BONE SURGERY.

Certain recent pieces of experimental work concerning the question of osteogenetic function of the periosteum may be grouped together.

Brown (W. S.) and Brown (C. P.)[47] in a series of 25 experiments on dogs were unable to produce bone from periosteal implants into subcutaneous tissue and muscle. They were unable also to make free bone transplanted into non osseous tissue form new bone. Where a periosteal flap was lifted and carried through muscle back to bone no osseous tissue was produced away from the bone. Transplanted bone in contact with living bone produced new bone. They conclude that periosteum does not produce new bone.

Gallie and Robertson[48] believe as the results of their careful and seemingly comprehensive experiments that Duhamel, who from his experiments in 1739 concluded that periosteum produced bone, was misled by the growth of the endosteum. They have repeated Duhamel and MacEwen's experiments and are convinced that MacEwen is right and Duhamel is wrong, and that periosteum does not produce osseous tissue.

The results of McWilliams[49], based on experiments and human transplants, also are in the main like those of other recent observers, though he thinks that periosteum may produce bone in soft tissue. He brings out clearly the value of periosteum as a limiting membrane and a source of blood supply.

Cohn and Mann[50], repeating most of MacEwen's experiments in 32 of their own in dogs, conclude that at least periosteum does not always produce bone. In none of their cases did they observe any ostetogenetic function. They think that small free bone implants may grow. They consider the periosteum to be a limiting membrane.

### TRAUMATIC LESIONS, FRACTURES, DISLOCATIONS, ETC.

Hey Groves,[51] after a large experimental and clinical experience, has reached certain definite conclusions: 1. Not to operate upon any case unless it seems probable that a better result can be obtained than by conservative treatment. 2. If operation is decided upon to employ a method by which perfect anatomical restoration of form can be secured and maintained by mechanical means of such efficiency that at the close of the operation the bone is stronger than before the fracture. He believes that we should not depend upon the frictional grip of nails or screws, but advocates a modification of the bolts and nuts of Prof. De Page (Brussels). 3. If perfect fixation has been thus accomplished he believes the limb should be freely moved as soon as the skin wound has healed,—7-14 days, and that natural function should be resumed as soon as true union has occurred. These conclusions are very similar to those of Sheen,[52] who as the result of a previous large practical experience without the use of plates and a recent trial of the operative methods of mechanical fixation believes that "no plating is satisfactory unless the bone junction is perfectly firm so that the weight of the limb can be borne by it." Hey Groves considers that Bardenheuer, by his traction methods, Lucas Championnière by the emphasis he has placed upon the evil effects of prolonged fixation, and Lane by the development of efficient local fixation, are responsible for the recent advances in the treatment of fractures. When non-union has occurred he believes that bone grafts are of great value. They should be accurately fitted and retained in position by pegs or sutures. Their failure to stimulate union has been due, in his opinion, to their being loosely inserted.

Albee,[53] in reporting fifteen cases of pseudarthrosis in which he has obtained good union in every case, credits his success to the use of his twin motor saws, which accurately cut and mortise the graft, position being maintained by bone pegs or sutures of kangaroo tendon through drill holes. He thinks it is of importance to take the autogenous graft from some healthy bone and not from the eburnated shaft near the seat of fracture.

Bland Sutton[54] believes that fractures of the external malleolus are frequently unrecognized. When recognized he has found them hard to hold in place and that the displacement was a cause of much pain. He has had good results from the removal of the small loose fragments.

Cotton's[55] article on astragalus injuries is comprehensive and analytical, and his advice as to treatment is helpful. These fractures, especially when the calcaneo-astragaloid joint is involved, are often very crippling and interfere seriously with the flexibility and painless function of the foot.

Turner Thomas[56] maintains that the primary cause of "obstetrical palsy" is usually not the

rupture of the brachial plexus, but rather the posterior subluxation of the shoulder joint. In the injury to the joint the plexus may be involved in the adjacent inflammation and at operation found to be imbedded in an abundance of tough adhesion, but he is convinced that the frequent presence of a posterior subluxation and the bent down condition of the acromion process are due to more than a brachial plexus injury. In the nine cases of severe and permanent palsy there was associated a subluxation. In two of the three cases in which there was no subluxation full function has returned. Immediately after birth reduction will be easy, the recognition of the condition being the important thing. He believes that cases in which there is no dislocation or the head of the humerus can be brought into place, offer a good prognosis, and that by exercise the capsule may be stretched to allow full abduction and the muscles induced to functionate. He agrees with Prof. Lange that these cases should not be "left alone."

Mencke[57] calls attention to the often serious and permanent disabilities resulting from fracture of the acromion process. He is sure the lesion is frequently overlooked. The injury is commonly due to falling on the hand with the arm abducted and the impact of the head of the humerus, as the arm is still further forcibly abducted. Direct blows he thinks are rarely responsible.

Thomas[58] also reports 18 cases of habitual or recurrent dislocation of the shoulder joint in which he has performed the operation of capsulorraphy with good results in all. He prefers the anterior axillary incision and carefully describes the steps and the dangers. He looks upon the lesion as merely a hernia of the joint and believes the operation more safe and effective than that for inguinal hernia. The convalescence is from one to three weeks.

Schwarz[59] considers that sudden traumatic separation of the upper epiphysis of the femur with immediate noticeable displacement practically never occurs. On the other hand, he believes that slight traumata may lead to a loosening of the epiphysis, which later becomes separated under the weight of the body.

[Ed. Note.—If Schwarz's views are true it is possible that we have here the explanation of certain of the obscure cases of flattened heads associated with coxa vara, which Bloodgood and Legg and others have reported.]

Lehmann[60] reports thirty-seven cases of injury to the elbow, comprising twenty dislocations, eleven fractures, and six questionable fractures, all in soldiers. There was more or less superabundant ossification about the joint following all these injuries. Many of these bony proliferations show a tendency to absorption if rest is afforded, but their occurrence indicates the necessity in these elbow injuries, even where the dislocation is reduced or no frank fracture is made out, of rest to the arm and the avoidance of too vigorous early massage.

MISCELLANEOUS.

*Chronic Granulating Inflammation of the Bone Marrow.* Rost,[61] working in Wilms' clinic in Heidelberg, has been conducting an interesting piece of research work on bone marrow. His work was stimulated by finding what seemed to be a chronic, granulating, non-suppurative osteomyelitis in several sections of bone removed from cases resembling tuberculosis. He then made a large series of experiments on rabbits to determine what influence a number of various substances had on bone marrow. Peptone, bouillon, tuberculin, sugar, olive oil, formalin, alcohol, acetone, magnesia, bismuth, agar, and indifferent fluids gave only a slight reaction, with a small scar containing little connective tissue, which is replaced by bone marrow in a few weeks. Perlmutter dust caused necrosis. Calcium led to the formation of giant cells. Horn dust was followed by rather extensive proliferation of connective tissue and the formation of cysts. Iodoform and Mesbé also caused some connective tissue formation, but the most extensive was caused by the injections of certain carbohydrates, such as Crude Paraffin and American Vaselin. The injection of cocci of decreased virulence caused a granulation tumor which greatly enlarged the bone, together with thickening of the vessels and a perivascular infiltration of round cells. Rost believes that many cases of chronic inflammation in bones of adults much resembling tuberculosis are really cases of chronic non-suppurative osteomyelitis, usually due to the staphylococcus.

[Ed. Note.—The editors have seen several cases of chronic non-suppurative osteomyelitis in which pain and the suggestion of a cavity in the x-ray plate have led to operative exploration. The findings in these cases have been confirmatory of Rost's views. In some of the cases a culture of the staphylococcus albus was obtained. In others there was no bacterial growth. There has been no frank suppuration, but evidence of a chronic low grade inflammatory process.]

*Bone Necrosis.* Axhausen[62] points out that the impression which most text-books of pathology give, that bone necrosis and sequestra formation are one and the same thing, is erroneous. Sequestra he believes are the result of infection and occur when a portion of necrotic bone is surrounded by pus and thus separated. Axhausen seems to take it for granted that cortical bone transplants become necrotic, but that the periosteum and portions of the marrow survive, and that the connection between dead bone and living periosteum is the cause of new bone formation.

*Syphilitic Affections of the Bones in Children.*—Fitzwilliams[63] considers that the only difference between syphilis acquired during adult life and syphilis acquired before or at birth is

that in children the slight resistance of tissue allows the disease to run unchecked, irregular in its course, and with a riotous mixture of primary and tertiary symptoms. In his experience, children tolerate mercury well and its administration should be kept up at least two years. For the periosteal pain in tibial periostitis he advocates incision, division of the periosteum, the cutting of a long trench into the marrow and removing the strip of cortex, closing the periosteum and subcutaneous tissues with catgut. This seems to the editors a rather radical and usually unnecessary procedure.

*Late Hereditary Syphilis of the Long Bones.* Mouchet and Saint-Marc[64] publish two cases of late hereditary syphilis resembling in the x-ray appearances in the female patient a sarcoma and in the man a multilocular cyst.

[Ed. Note.—Such reports as this we believe are important, since our knowledge of syphilitic bone disease is still very meagre, and as Boorstein has said, far too few cases of syphilis of the bones have been carefully studied and reported, and we are very lacking in our ability to recognize the clinical manifestations. We are coming to realize that its types are very numerous and frequently very confusing, in that they resemble many other non-luetic bone lesions in their Roentgenological appearances.]

*Operative Treatment of "Flat Foot."* Els,[65] working in Garré's clinic in Bonn, has been impressed with the good results which have followed tenotomy of the Tendo Achillis in cases of "flat foot." They have followed Hertle's method of open incision, division of the tendon, turning of the divided ends away from each other, the one up, the other down, so that a space of about 4 cm. is left between. Els says that this space is bridged in a few months by a firm scar, tendon-like band. Most of these patients were able to resume their work in about five weeks after their operation, although many of them had been idle for many months previously. The marked diminution of pain even when the deformity was not much corrected he believes to be due to the lessened strain on the astragalo-scaphoid joint, owing to the change of position of the os calcis. Only occasionally are supports necessary, though in the severe cases a bone operation is advised.

[Ed. Note.—We are not confident that this operative procedure is wholly rational or advisable, although apparently it has relieved symptoms in many cases. In Els' cases there was, in addition to the tenotomy a rest of several weeks, which alone frequently relieves symptoms. He states also that the space between the divided ends of the tendon is soon filled in with a firm tendon-like band of scar tissue, which must act very like the tendon. In cases with marked deformity a support was used, and in those with abduction an alteration in the tread of the shoe. While we recognize the frequent association of a short heel cord with foot strain and acknowledge its etiologic relation in certain cases, we see many cases, ranging from simple pronation strain to marked valgus, in which dorsal flexion to well beyond a right angle is possible. We are inclined to believe that this operation has little to commend it over a simple tenotomy or tendon lengthening and that even these procedures are only rarely necessary in cases of foot strain.]

Under the title of Etiologic Relation of Posture and Gait to "Flat Feet," Harris[66] holds that improper posture and faulty methods of standing and walking are responsible for weak and flat feet and believes that arch supports should never be worn, and maintains that all cases can be cured by certain exercises which he describes. 1. Rising on heels. 2. Rising on tiptoes. 3. Rising on flexed toes, "grasping." 4. Feet crossed, swaying laterally, etc., etc.

[Ed. Note. We agree heartily with this common relation of bad posture and gait to foot strain. We admit the abuse of arch supports by orthopaedic surgeons as well as by instrument makers and shoe stores, but we consider that the temporary use of some form of support is at times a most helpful means of relieving symptoms and allowing people to lead ambulatory lives. We believe that they should not be prescribed as is so often done as a cure. We should not relax one whit in our exercise treatment and the gradual development of muscles so that a normal shaped flat heel, flexible shanked shoe may be worn with comfort and may aid in the further development of muscles, while the strength and flexibility of the foot is increased. The emphasis at present needs to be laid upon the surprising gains which can be made in this manner by persistent work on the part of the patient even in cases of rigid, painful feet. We do not believe, however, that growing children with bad weightbearing lines, not controllable by altering the tread of flexible shoes, or adults with faulty muscle balances and valgus, should be allowed to walk in positions of deformity and strain. Any exercise treatment administered to muscles already fatigued is less efficient than it should be. Let us be rational and relieve strain in the foot joints by temporary support as we do in other joints. Let us give the devil his due, though at the same time recognizing that what may be a temporary blessing may be a permanent curse.]

Hunt[67] describes a painful spasm of the lumbar muscles following the exertion of walking or standing, which disappears after a brief period of rest. The motions of the spine may be free and painless and the symptoms are produced only by rhythmic muscular exercise. Hunt considers these symptoms to be due to the same causes as the more generally recognized angina cruris or intermittent claudication and limping, where the cramplike spasm is present in the calf. The arteriosclerotic changes often present in the abdominal aorta in these cases of "Ischaemic Lumbago" seem to account for the condition.

We believe that the example of the American Orthopaedic Association in appointing at its

Washington, 1913, meeting a Commission to Study the Results of Treatment of Scoliosis may well be followed by the appointment of other impartial commissions to study the results of other vexed questions such as arthroplasty, etc. This Scoliosis Commission invited various physicians who were having large clinical opportunities to submit to it six cases, which had been treated by the various methods of forcible correction in plaster jackets. They then selected the clinic of Dr. E. G. Abbott, of the Children's Hospital in Portland, Maine, the clinic of Drs. Lovett and Sever at the Children's Hospital in Boston, the Clinic of Dr. S. Kleinberg at the Hospital for the Ruptured and Crippled in New York, and the clinic of Dr. Z. B. Adams at the Massachusetts General Hospital in Boston, for personal observation. Cards with identical headings as to cause, types of curvature, length and type of treatment and previous condition as shown by records and present condition, were made out by the surgeons for their own cases and independently by each member of the Commission who personally visited the different clinics at the same time and observed the patients and their records. The cases were divided into Grades A, B, and C in proportion to their severity and rigidity and the figures 1, 2, 3, 4, denoting grades of improvement from overcorrection to no improvement were agreed upon. Percentages could then be roughly worked out and the Commission found these were practically the same in all their three independently taken observations, though they did not in most cases agree with those of the physician whose cases were being thus critically studied. The report of this Commission was presented at the June, 1914 meeting of the American Orthopaedic Association held in Philadelphia, and has been published in the July number of the American Journal of Orthopaedic Surgery. The great difficulty which the Commission found in arriving at absolutely trustworthy judicial conclusions was the meagerness and lack of standardization of the previous records of the cases. The Commission has been continued and this year is taking its records with X-ray and standardized photographs in the same clinics of a series of cases before treatment, and is planning to take other similar records of the same cases after six months of treatment. We believe this method represents real progress in orthopaedic surgery and is likely to allow an earlier reliable conclusion as to the value of new methods of work than has been possible heretofore.

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## Reports of Societies.

### NEW ENGLAND PEDIATRIC SOCIETY.

C. A. PRATT, M.D., *Pres.*
FRITZ B. TALBOT, M.D., *Sec.*

THE THIRTY-SECOND ANNUAL MEETING OF THE NEW ENGLAND PEDIATRIC SOCIETY WAS HELD IN THE BOSTON MEDICAL LIBRARY, FRIDAY, OCT. 23, 1914, AT 8.15 P.M.

The following papers were read:

MEGALOCOLON AND MICROCOLON WITH CASE REPORTS.

DR. LANGLEY PORTER, San Francisco, Cal.

THE DIFFERENTIATION OF HUMAN AND COWS' MILK BY COLOR TESTS.*

DR. RICHARD S. EUSTIS, Boston.

ASTHMA IN CHILDREN: ITS RELATION TO EGG POISONING.†

DR. FRITZ B. TALBOT, Boston:

* See JOURNAL, page 92.
† See JOURNAL, Vol. clxxi, page 708.

## MEGALOCOLON AND MICROCOLON.

By LANGLEY PORTER, M.D., AND ALLANSON WEEKS, M.D. (From the Medical Dept. of Leland Stanford Jr. University.) It is probable that megalocolon is a more common deformity than is generally thought. The writers have encountered six cases during the past five years.

The symptoms present from birth are great abdominal enlargement, visible peristalsis, obstinate constipation, later anemia and toxemia from fecal retention.

The process may include the entire gut or it may cease at the sigmoid and be replaced by a narrowing. That isolated segments of the large intestine may be affected while most of the gut remains intact and healthy is to be doubted. Fatal collapse can occur from fecal obstruction and this may be brought on by injudicious attempts to empty the bowel.

High fat formulae are not adapted as soap stools give more trouble in all classes of megalacolon than other stools. Enemata are the best means of producing bowel evacuations. Castor oil and magnesia are to be shunned. In older children milk should not be given.

The one measure that promises relief is operative procedure which should be utilized in two or three stages: colotomy with artificial anus; (and this cannot be done too early in the child's life or in the history of the case); lastly, excision of the entire large intestine with anastomosis from the ileocecal region into the rectum; or anastomosis may be done as a second step and resection of the entire colon be made a third operation.

The authors also reported a case of microcolon which illustrates a condition opposite to megalacolon and at the same time furnishes us with an abnormality in the small intestine which in every way parallels the pathological changes found in the large intestine in cases of giant colon. Some reports under the caption stenosis of the colon may have reference to this condition.

### DISCUSSION.

DR. J. L. MORSE: I have a case here of this condition which I would like to show to the Society. A child of 25 months, born at full term; nursed for five months, then fed on condensed milk until a year old and since then on an average infant diet. The mother noticed that the abdomen was large at birth and states that in the beginning the enlargement was more noticeable in the lower part of the abdomen and gradually spread upward until it involved the whole abdomen. The baby has always had a good digestion. He has never vomited, but he has never had spontaneous movements. He had from one-half to one teaspoonful of castor oil every other day during the first year and castoria every other day since then. The baby has thriven normally, as you will see, and is in good general condition in spite of his trouble. He was under observation in the Children's Hospital from the third to the eleventh of October. He had no temperature during this time. The tuberculin test was negative. His white blood count was 10,800. He had no spontaneous stools, but with help had daily movements. These stools were medium sized, light-brown, semisolid, and alkaline. They contained no neutral fat, but a very slight excess of soap and a little starch. That is, his digestion, as shown by the microscope, was fairly good. He had very definite undulating peristalsis throughout his abdomen. I do not know whether he will show it tonight or not, but he had it a good deal of the time while there. We had him under ether and nothing was discovered except the distinct loops or coils of intestine. He was given a bismuth meal, and we have the plates here which we will show you in a few minutes. These plates show that there is some delay in the emptying of the stomach, but that after the stomach is emptied, the bismuth goes down through the small intestine fairly normally. The plates taken after a bismuth enema show a dilatation of the intestine for some distance up. The bismuth apparently did not, however, come anywhere near going into the whole of the large intestine. I do not think that we gave him enough. The rectal examination was negative.

Dr. William Ladd saw the case with me in consultation and we both felt very strongly, as, of course, everybody does about this condition, that the child's best chance lay in an operation. The mother does not look at it the same way at present, but we hope that she will see the light later.

DR. A. C. EASTMAN: It may be of interest to mention a case I saw a year ago illustrating the border line cases of megalocolon. This child I first saw in consultation one year ago at which time he was 14 months of age. The mother was still nursing him and having difficulty in weaning him. She gave a history of more or less vomiting during his first year in spite of being breast-fed. These attacks were irregular in onset and seemed to come more often in connection with attacks of constipation. After some difficulty he was weaned and for a while kept on a milk diet as there was difficulty in adding any other food. His constipation continued and at times was very stubborn. We added laxative foods to his diet as fast as he would take them, cutting down the quantity of milk, and for a while there seemed to be some improvement. In spite of this every few weeks he would have attacks of constipation which required most energetic treatment with oil, salts and enemata finally to secure a result.

Last May, when 22 months old I saw him again. He weighed twenty pounds, was still having marked constipation, general flabbiness of the muscles and altogether in a rather poor condition. His appetite was very poor and in order to get him to eat they had diminished his laxative diet and put him back on a milk diet. He was given two drops of nux vomica three times a day and put back on his laxative diet.

In August he had an attack of diarrhea followed within two or three weeks with his previous constipation. His movements were very light colored, of small size and quite frequent. He also cried with apparent pain each time that he had a movement.

In September x-ray plates were taken after a bismuth meal which showed normal muscular stomach tone, the bismuth appearing at the cecum within about four hours. A marked enlargement of the whole colon and rectum was shown and it took nearly 72 hours for the colon finally to empty itself of the bismuth. He was then put on a strict laxative diet and given high oil enemata each night. As a result he had a better movement early in the morning but continued to have frequent small dejections during the day.

In October his general condition was much improved and his present weight is 25 pounds.

Since the date of the meeting he continued to

have considerable pain with his bowel movements which were still quite frequent and small. Rectal examination showed marked spasm of the sphincter with considerable excoriation around the anus. Applications of a mild ichthyol ointment were used for one week with slight benefit. The anus was then dilated under ether and since then his condition has improved steadily, the pain has ceased and the dejections larger and less frequent.

DISCUSSION ON DR. TALBOT'S PAPER.*

DR. H. I. BOWDITCH: How is this egg albumin administered? Is it given as a dry powder?

DR. R. H. SMITH: The egg albumin is prepared by Merck. It can be procured at the drug stores in the powdered form in capsules.

## Book Reviews.

*Kirkes' Handbook of Physiology.* Eighth American Revision. Revised by DR. CHARLES W. GREENE. Illustrated. New York: William Wood and Company. 1914.

The appearance of a new edition of this widely used Handbook of Physiology arouses again the ever-recurring question as to the reason for its popularity as a text-book. It has been adopted by colleges as the basis of undergraduate instruction in physiology, and is used also in medical schools for the instruction of medical students. Whatever may be its merits as a handbook, to be used for reference by persons already familiar with the subject matter of physiology, as a text-book, to be placed in the hands of students, it serves neither undergraduates nor medical students satisfactorily.

To illustrate specifically: A review of histology, occupying 54 pages, is placed near the beginning of the book. The college undergraduate is bound to find this section dull and almost meaningless. The medical student, who, necessarily takes elaborate courses in histology, independently of his work in physiology, will pay no attention to it. Such histology as may properly be included in a text-book of physiology will be grasped more completely by the student if given in connection with the physiological discussions of the tissues described. A very brief general outline at the beginning serves better than an elaborate discussion.

Immediately following the section on histology is a chapter of 45 pages on the chemistry of the body. In this chapter the author plunges without warning into the most complex conceptions of organic chemistry. This procedure is legitimate in a handbook, but when the handbook is diverted to use as a text-book we are confronted with the fact that its users will be either students without adequate chemical preparation for comprehending these conceptions, or students whose previous or concurrent courses in biological chemistry make the introduction of them into a physiological text-book unnecessary. Much of the material of this chapter is useful for reference. The transfer of all of it, except a general outline, from the body of the work to an appendix, would increase the usefulness of the book as a text-book.

Passing on to the strictly physiological portion, we find in the chapter on blood, under theories of coagulation, Morawitz' complex theory given in detail, accompanied by his bewildering diagram, and immediately afterward Howell's beautiful simplification of the theory introduced, apparently as an afterthought, in such a manner as to beeloud rather than to clarify the discussion.

There is no attempt to present the facts of physiology in sequence. The early chapters make familiar mention of matters which are not formally introduced until much later. Thus, on p. 84, enzymes and their catalytic action are mentioned, although no description of them is to be found until page 329 is reached. Similarly, in the discussion of means of hastening coagulation, on page 125, epinephrin is introduced, but the student does not become acquainted with this substance nor with the general conception of hormones until he has read more than three hundred pages further. In this same chapter on blood the phenomenon of coagulation, a matter purely of blood chemistry, is discussed in detail *before* the chemical nature of blood is described. Similar curious inversions of logical order occur throughout the book.

In many portions, notably the sections on the cerebrum, cerebellum, and sympathetic system, the author contents himself almost wholly with statements of the experimental basis for our knowledge of the functions under consideration, leaving the interpretation of the experiments to the reader. This method of presentation is highly satisfactory to the physician or physiologist who wishes to obtain at second-hand the data on which to base his own interpretations. For the beginning student the study of numerous experimental data, not all of equal significance, and unaccompanied by clean cut inferences, is less likely to lead to the desired grasp of physiology than is the reading of a text-book containing fewer descriptions of experiments, but emphasizing the fundamental principles which have been established as the result of the sum total of physiological investigation.

Save for a few errors in the index, the work, on the mechanical side, is satisfactory. The illustrations are well selected, as a rule, and are printed with enviable clearness.

* See JOURNAL, Vol. clxxi, p. 708.

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## HOSPITAL EFFICIENCY.

A HOSPITAL accused of being inefficient must of necessity meet a charge which involves a moral as well as a business responsibility. A group of men may lose money by poor business management and still lose it honestly, if the money was their own or is wasted with the approval of those who possessed it. Health may not thus honestly be lost by hospital inefficiency, since it never belongs to those by whom it is lost nor is it wasted with the approval of those who possessed it. Health should not be discussed in terms of dollars and cents.

We are convinced that this charge of inefficiency can with justice be made against certain hospitals. We believe that none desire to be inefficient and we know that the struggle to become efficient is the chief aim of many and the attainment of a few. There is no problem more important, but many of the methods of solution are still in the stage of development.

Without question there should be a group of representative men connected with every hospital who have the best interests of the hospital at heart, whose duty it is to evolve some standard by which the efficiency of the administration and the different medical services may be judged. The difficulty of picking this representative efficiency committee is admitted to be great. Mistakes will lead to a more careful selection but will not prove the principle wrong. The difficulty of evolving a standard of efficiency especially with reference to the staff, is admitted to be still greater, but with an earnest attempt to understand conditions of work, and by critical, and at the same time friendly, scrutiny of end results, we believe fairly suggestive impressions may be gained. These impressions may be confirmed or disproved by further special observation.

It may be fairly questioned whether at this time there are any hard and fast rules by which standards of efficiency applicable to all hospitals can be determined. Opinions of men differ. These men are equally well qualified to hold opinions and are zealous and earnest in striving to bring about this universally desired result. The report of the committee appointed by the Clinical Congress of Surgeons is important and suggests methods of determination. It should be read by everyone interested in hospitals, certainly by every member of every board of trustees and staff, and it should lead to an immediate consideration of the question by all hospitals.

We as medical men should not only welcome but demand the closest examination by friendly peers of our methods and, with due consideration, of our results. We believe we shall reach the goal of hospital efficiency most quickly by proceeding on the supposition that there is a sincere and general desire for this efficiency, though there may be honest differences of opinion as to methods of attainment. The large attendance at a recent medical meeting where the subject was under discussion was an evidence of the interest of physicians of this and other communities in this question.

Hospitals have a right to request that the investigation be left in their hands, but the public have a right also to demand that this investigation, which so closely concerns them, be thorough and as speedily carried out as the complexities of the problem will allow.

If this demand is not met it is conceivable that an unsympathetic investigation may be instituted, the inevitable injustice of which it is unpleasant to contemplate, and the harmfulness of which it would be difficult to measure.

## EXERCISES IN THE TREATMENT OF TABES.

IN another column of this issue we publish a paper on compensatory exercises in the treatment of locomotor ataxia. Owing to the development of salvarsan therapy and the recognition of the fact that tabes must be taken out of its old category as a para-syphilitic disease and regarded rather as a late manifestation of the original infection, renewed interest in its treatment has been natural and inevitable. Experience is now sufficiently extensive to make the definite statement that tabes is distinctly influenced by arsenic therapy and it is, perhaps, not too much to say that, if taken in its early stages, it may be cured, or at least rendered stationary for an indefinite period of time. The enthusiasm which has attended this therapeutic outlook has, perhaps, distracted our attention from other useful, if less brilliant, methods of treatment. This is unfortunate, since it must be apparent that however beneficial salvarsan therapy may be, it can by no means be regarded as curative in well-developed stages of the disease. Its influence on pain and the various discomforts incident to the disease is now somewhat universally recognized, but that it can, unaided, overcome a pronounced ataxia of long duration, is not to be expected, and this, certainly, it has not succeeded in accomplishing in any notable degree. As an adjuvant, therefore, to the salvarsan treatment, which, in our opinion, should become a routine measure in practically all cases, stress should certainly continue to be laid upon the principle of training in coördination, originally advanced by Fraenkel and subsequently developed and amplified by Foerster, to which Dr. Swift again calls attention.

The Fraenkel exercises are clearly based upon a perfectly logical conception of the nature of ataxia as essentially a loss or impairment of coordination. It is apparent, therefore, that any means capable of redeveloping or reëducating the coördination becomes an entirely rational method of treatment. Experience demonstrates both its rationality and its practicability. It is quite possible to use these exercises, perhaps in somewhat modified form, in hospital out-patient departments and with unquestioned benefit to the patients, both as regards their general morale and also their actual capacity to coordinate their movements in more orderly fashion. It is possible, as suggested by Dr. Swift, that the Fraenkel movements lay unnecessary stress upon coördination in the lying position. Foerster, on the other hand, has placed chief emphasis upon the education of equilibrium and is of the opinion that, other things being equal, walking exercises and others in the erect position, lead more quickly to the desired end. In this connection it should be remembered that Fraenkel also insisted upon walking, but only after a somewhat perfect coördination in the less exacting reclining position had been secured. The suggestions made by Foerster and approved by Swift are, undoubtedly, of great practical importance in the treatment of this condition, and other things being equal, it is important to bear in mind that methods which lead to the most direct results are desirable. As a matter of fact, the theories of Fraenkel and Foerster are the same in principle and are supplementary to each other. The important point is, that both lay stress upon the necessity of training and coordination as a distinct method of treatment in one of the most distressing conditions of the disease. It is well to bear this in mind, as suggested before, in view of the possibly over-enthusiastic claims of salvarsan in the treatment of a disease which, if well developed, demands all the resources of our therapeutic art.

## THE PROPOSED ABOLITION OF THE OFFICE OF CORONER IN NEW YORK.

FOR a number of years past, efforts have been made by the more enlightened part of the community in New York to do away with the time-worn, if not time-honored, institution of "crowners' quest," but thus far they have proved unsuccessful. This year there seems to be some prospect that this desirable consummation may be attained.

One ground for this hope is the moral effect which must certainly result from the report by Leonard M. Wallstein, commissioner of accounts, of an elaborate investigation of the system as conducted in New York City, noted in last week's issue of the JOURNAL. According to this report, a continuance of the present system would constitute a public scandal and disgrace, and it is indeed a scathing record which is presented in the following extract:—

"An analysis of 800 inquisition papers made by Dr. Haven Emerson, deputy commissioner of health, shows that in 320 cases, or 40% of those examined, there is a complete lack of evidence to justify the certified cause of death. The incompetent work of the coroners' physicians in the investigation of criminal deaths deprives the community of an absolutely necessary deterrent to crime. So far as the activity of the coroners' office in New York City is concerned, infanticide and skilful poisoning can be carried on almost with impunity. Under the elective coroner system, and in the face of exceedingly difficult conditions surrounding successful criminal prosecution, New York is compelled to get along virtually without aid from the science of legal medicine, a situation that exists in no other great city in the world."

In the field of criminal abortion we learn that the system, instead of serving to detect crime, has become an agency for shielding defendants and concealing criminality. In connection with abortion cases coroners are said to have called or failed to call juries, as best suited their purposes, to have packed juries, and to have intentionally failed to call necessary witnesses or cause police investigation, or to utilize the results of such investigation when made. There is given a long catalogue of the shortcomings and misdoings of the coroners, and a few additional charges may be cited to show the necessity for a radical change. These officers have abused their powers to compel the employment of favored undertakers by the unfortunate families of deceased persons. Civil rights and liabilities have been profoundly affected by the findings of coroners whose action in many instances has been a travesty on justice. Attempts have not infrequently been made to extort sums of money from insurance companies in return for findings in the companies' interest, and until the enactment of the workmen's compensation law the coroner sometimes injured the rights of deceased workingmen by helping to establish for employing individuals or corporations a condition of affairs which would relieve them of liability.

The elective coroner in New York represents a combination of power, obscurity and irresponsibility which has resulted in inefficiency and in malfeasance in the administration of the office. With the coroner's constant temptation and easy opportunity for favoritism and even extortion, the report says, with utter lack of supervision and control, and without affording the slightest preparation or training to create in his mind a scientific and professional interest in the performance of his duties, the present system could not have been better devised intentionally to render improbable, if not impossible, the honest and efficient performance of the important public functions intrusted to this office. Candidates for the position of coroner are nominated "to balance the ticket," to represent a given race, religion, faction or district. Thus, almost every consideration except proper qualification determines the selection, and many of the coroners are absurdly ignorant both as to the legal and the medical aspects of their work. Still another serious objection to the system is the waste of the public funds, as the expense of its maintenance is something like $175,000 annually, an amount far exceeding what it would cost, under a proper system, to have the work done in an infinitely better manner. The present conditions have long been known, and it is asserted that a remedy would long since have been forthcoming had this not been prevented by purely selfish political considerations. Never before, however, has the public had set before it so complete an exposition of these evils.

Since the completion of the report a case has come to light which further illustrates the charges made in it. A laborer was found dead twelve hours after the janitor of the house where he lodged had helped him to his room in a disabled condition. The police apparently found nothing suspicious about the case and the body was taken to the morgue, where a coroner's physician gave the cause of death as nephritis. When, however, the undertaker who was employed came to examine the corpse he found a large wound at the back of the head. He promptly notified the district attorney's office, and consequently the funeral was postponed and the body ordered back to the morgue. There an autopsy was made by Dr. Charles Norris, director of the laboratories of Bellevue and Allied Hospitals, and Dr. Douglas Symmers, associate professor of pathology in the University and Bellevue Hospital Medical College; when there was found a wound in the back of the head about an inch long and half an inch wide, beneath which there was a linear fracture of the skull, while no evidence of any disease whatever was discovered in the kidneys. The appearances of the injury indicated that it was probably inflicted by a blow such as that by a hammer, and an examination of the man's room showed a considerable amount of blood on the floor, where his body was found.

The recommendations which Commissioner

Wallstein makes include the elimination of the "scandalous jury system and coroners' court" and the substitution therefor of a system of medical examinations by experts similar to that which has worked so successfully in Massachusetts, and he expresses the opinion that the choice between these two methods of fulfilling a public function is "as clear as the distinction between night and day." A bill embodying these recommendations is now being prepared for introduction in the legislature. Similar bills have from time to time been presented at Albany, only to be killed in committee or fail of enactment, but better things are hoped for this, especially as it is believed that it will have the earnest support, not only of the Mayor of New York, but of Governor Whitman, who, from his extended experience as district attorney, has had ample opportunity for observing the deficiencies of the coroner system as a deterrent from crime.

## THE IMPORTANCE OF THE PHYSICAL EXAMINATION OF THOSE ATTENDANT UPON INFANTS.

THE untrained attendant received into the family to care for small children and infants, which work necessitates the closest and most intimate contact, often for long periods of time, is practically never examined physically before beginning such duties. In the hospitals, where courses of training of some months' duration are given, such persons are carefully looked over, but the number of persons receiving such training is very small. The problem as a whole does not affect a very large percentage of families, but is none the less an important one. It is estimated that 16% of American families keep one servant or helper and 2% more than one.

The importance of the subject narrows down largely to the consideration of the question of latent tuberculosis or inherited lues. When most persons are engaged in this work, they are at the age when latent tuberculosis is apt to become active, unnoticed perhaps for a considerable period of time, during which, the intimate contact between infant and attendant is kept up. We are, at the present time, more fully aware of the great amount of unrecognized and latent inherited lues in all large communities, through the application of the Wassermann reaction and the use of the x-ray.

It is not then saying too much, with due regard to the fallacy of some eugenic teachings and propaganda, that a person employed in such intimate contact with small children and infants, often for long periods of time, should, on demand, present a certificate of health from a reputable physician, competent to diagnose the above-named troubles. If the expense of such a certificate were too much for the attendant, arrangements could, perhaps, be made with employment agencies in large cities to have the applicants for such positions examined at some large hospital or dispensary, and such certificate issued at a nominal fee, to be renewed at any time, if all is found well. Whether or not the question is settled in this manner, it seems probable that the part of the public directly interested will, when their attention is called to the importance of the matter, have this examination made by their own physician.

## DISINFECTION OF SEWAGE FROM TRAINS AND STEAMERS.

WE all recognize the danger of discharged excreta from trains while passing over watersheds and from steamers, especially on the great lakes, when perhaps a few minutes later another one will take in drinking water just where the foul matter from the first has been discharged. The locking of toilet doors on trains while traversing watersheds and while in stations causes considerable inconvenience to passengers, and it is doubtful whether in the case of watersheds the control is absolute. The use of steam for the disinfection of sewage was suggested by Professor Earl B. Phelps in March of last year, and applying this suggestion to the special problem of train and steamer sewage disposal, Leslie C. Frank, sanitary engineer in the Public Health Service, has devised a plan which he has successfully carried out in the preliminary experiments carried on at the Hygienic Laboratory.[1] This plan includes an automatic disinfection of the sewage of a train or steamer by use of heat generated by the power from its propelling engine. There is an insulated container 12 to 15

[1] Sewage Disinfection for Vessels and Railway Trains, Leslie C. Frank, U. S. Public Health Report, January 1, 1915.

inches high and 12 to 15 inches wide, and 4 feet long. The contents are automatically discharged when they reach the boiling point. The device is not limited to steam as a heating agent. For the steam may be substituted electric heating elements, a coil of pipe carrying the exhaust from a gasoline engine, or direct heat from gas or gasoline burners. It is, therefore, apparent that this plan is applicable to the disinfection of sewage from practically all forms of common carriers. It is estimated that the cost of construction uninstalled would be about $16 for each steamer toilet and about $15 or $20 per coach on trains. Using steam as a heating agent, the cost of disinfection on steamers would be $1 per thousand closet flushes, and on trains 7½ cents per thousand flushes. Estimates of toilet usage indicate that the cost per toilet would be 5 cents a day on steamers and 1½ cents a day on coaches. Thus economy of resources as well as economy of health would be attained by the process thereby deserving the approbation of the business public as well as the professional public.

## MEDICAL NOTES.

SMALLPOX AT VERA CRUZ.—Report from the American consul at Vera Cruz, Mexico, on Jan. 6 states that smallpox is now epidemic in that city. The number of cases is not given.

MENINGITIS AMONG CANADIAN TROOPS.—A cable report to Fredericton, N. B., on Jan. 7 states that 30 cases, with 10 deaths, of cerebrospinal meningitis have recently occurred among Canadian troops in camp on Salisbury Plains, England.

PLAGUE INFECTION AND ERADICATION IN NEW ORLEANS.—The weekly report of the United States Public Health Service for Dec. 25, contains a detailed list of thirty cases of human bubonic plague recognized and reported in New Orleans at the time of the outbreak in that city last summer. The last case occurred on Sept. 30. There is also an epidemiologic study of a plague focus in New Orleans by Dr. Charles B. Akin, illustrated by five excellent plates. The importance is emphasized of thorough destruction of rat hiding places and thorough closure of all holes in brick walls on premises where plague has been found, to preclude the possibility of mouse infection.

AUSTRIAN ACADEMY OF SCIENCES.—The Austrian Academy of Sciences has recently awarded to Professor Wagner von Jauregg the sum of five thousand marks for his research on the etiology of goitre.

HUNTERIAN ORATION.—The Hunterian Oration of 1915 will be delivered on Feb. 15 before the Royal College of Surgeons of England by its president, Dr. Sir Watson Cheyne.

AN IMPORTANT MEDICO-LEGAL DECISION.—On Jan. 7 an important decision was rendered by a New York surrogate to the effect that a child born with a beating heart is alive, even if it never cries, and may inherit property. Hitherto the English common law has held that the first cry legally constitutes life, and that a child which never cries is stillborn. From a medical standpoint, of course, it is primarily the heartbeat which renders a child living, since the fetus is alive while *in utero*. It is a matter of indifference whether oxygenation is obtained through the lung or the placenta. This decision, if sustained, will be of importance in future litigation concerning the reversion of estates falling to children stillborn or dying soon after birth.

FOOT AND MOUTH DISEASE.—Report from Baltimore on Jan. 10 states that a human case of foot and mouth disease has been discovered in a medical student of that city.

Statistics recently published in the January issue of the *Metropolitan* show that the latest European epizoötic of foot and mouth disease originated in Russia in 1886.

"Four years later statistics collected in the German Empire showed that nearly half a million head of cattle, more than a quarter million of sheep and goats, and more than a sixth of a million of swine were victims of the disease. In 1871 the infection cost France over seven million dollars; in 1883 England stood a loss of five million dollars.

"Dr. Cope, of the British Board of Agriculture, said at the International Congress of Veterinary Surgeons at Baden-Baden: 'It is true that the foot and mouth disease rarely assumes a fatal character, but the fact that nearly all classes of animals on the farms are susceptible renders the indirect losses much greater in the case of foot and mouth disease than in rinderpest or pleuro-pneumonia, which only affect cattle. In my country, where it existed for at least fifty years, it caused enormous loss—greater than that of all the contagious diseases of animals combined.'

"Dr. Loeffler, an authority, says: 'Foot and mouth disease is spreading more and more every year, and every year it costs the German Empire enormous sums. Necessary measures had been taken with the greatest care; suspected grounds had been closely quarantined; this measure had been extended to whole communes, and even to entire districts; disinfection had been carried out

carefully, and, notwithstanding all this, the disease kept spreading.'

"For eight years England barred the importation of all cattle from countries where the disease was known to have a foothold."

EUROPEAN WAR NOTES.—It is announced that the Harvard Medical School will probably organize an expedition of surgeons, nurses and assistants to take charge of a ward in the American Ambulance Hospital at Neuilly (Paris). Similar expeditions have already been sent by the Jefferson Medical School and by Western Reserve University. To make the project possible a fund of $10,000 must be raised, and if this can be done, it is hoped that the expedition may sail for France about the first of April.

Sir Frederick Treves has recently presented to the British Red Cross a report of his tour of inspection of its field hospitals in the north of France:—

"This report stated that the value and efficiency of British Red Cross work in France could be well gauged by a visit to the store-shed at Boulogne, by a study of the postings of the fleet of motor ambulances, and by the distribution of the surgeons, nurses, and orderlies in the employment of the Joint Committee.

"The store at Boulogne contained the infinite variety of articles that come under the heading of Red Cross supplies, and the huge depot is described as a model of efficiency. The fleet of motor ambulances Sir Frederick considers to be the most valuable form of voluntary service ever rendered to the Army Medical Department. The ambulances are working everywhere, bringing down patients and returning with stores for the wounded. In the saving of life, the lessening of suffering, and in securing prompt surgical treatment of the wounded, the ambulances have done a work the value of which can hardly be exaggerated. Their efficiency in removing the wounded from the hospital trains to the wards or ships is a revelation to those who have only seen horse or hand carriage in operation.

"The personnel of the Society is dispersed in many directions. Many surgeons are attached to the military and auxiliary hospitals, others are with motor convoys, or with trains or at rest stations. A few are with French troops.

"Valuable work is done at Boulogne by a British Red Cross voluntary aid detachment located in seven railway wagons standing in a siding. There is a dispensing store, a surgery equipped with all necessaries for an emergency dressing station, and a kitchen from which at any hour of the day or night tea or cocoa and other refreshments are supplied to the wounded passing through. Three fully trained hospital nurses are included in the staff, and they render innumerable little services to the wounded. As many as 2300 men have been fed in one day at this station."

On Jan. 16, the total of the New York Belgian relief fund amounted to $841,645.82; the New York Red Cross fund to $439,464.01; the American Ambulance Hospital fund to $304,344.68; the Jewish relief fund to over $300,000.00; the American Women's war relief fund to $219,550; the Prince of Wales fund to $103,513.88; and the Committee of Mercy fund to $101,028.81.

On Jan. 17, the total of the New England Belgian relief fund amounted to $177,999.93; the Massachusetts Red Cross fund to $101,042.02; the Boston branch of the American Ambulance Hospital fund to $50,996.45; the Boston Jewish relief fund to $25,181.10; the Boston German relief fund to $22,326.94; and the Boston Polish relief fund to $11,734.21.

## BOSTON AND NEW ENGLAND.

HOG CHOLERA IN BROOKFIELD.—Report from Brookfield, Mass., on Jan. 7 states that a valuable herd of Yorkshire swine in that town has been found to be infected with hog cholera, of which 10 swine have already died.

MASSACHUSETTS GENERAL HOSPITAL TRAINING SCHOOL.—The graduating exercises of the training school for nurses of the Massachusetts General Hospital were held in Boston on Friday evening of last week, Jan. 15. The principal address, by Miss Mabel T. Boardman, chairman of the national relief board of the American Red Cross, will be printed in a subsequent issue of the JOURNAL. Diplomas were awarded to a class of 54 nurses, two of whom presented graduation essays.

CASE OF TRYPANOSOMIASIS AT TEWKSBURY.—Report from Lowell, Mass., states that on Jan. 9 a patient died of trypanosomiasis at the Tewksbury State Infirmary. The patient was a native of Cape Verde Islands and removed recently from New Bedford, Mass., to Boston. His is the first recorded death from the disease in this state. He was thirty-five years of age.

MILK AND BABY HYGIENE ASSOCIATION.—At a recent meeting of the Boston Milk and Baby Hygiene Association, the directors' report stated that during the year 1914 the Association cared for 4097 babies. The total attendance at the weekly clinics for well babies was 19,673, an increase of 43% over that of 1913. The nurses made 41945 visits to the homes of patients in 1913, and 50,221 in 1914.

ROBERT BENT BRIGHAM HOSPITAL.—At a recent meeting, Dr. Robert B. Dixon and Dr. Joel E. Goldthwait of Boston were reëlected members of the board of directors of the Robert Bent Brigham Hospital.

BOSTON DISPENSARY.—At a recent meeting of the medical staff of the Boston Dispensary, Dr. John D. Adams was elected president, Dr. Frederick C. Cobb, vice-president, and Dr. Elmer W. Barron secretary and treasurer.

A meeting is to be held under the auspices of the Dispensary at Hotel Tuileries on Thursday evening, Jan. 21, at which the principal address, on "Dispensaries as a Growing Factor in Curative and Preventive Medicine," will be by Dr. S. S. Goldwater, health commissioner of New York City and formerly superintendent of Mt. Sinai Hospital, New York. There will also be addresses by Dr. Allan J. McLaughlin and Dr. Edward H. Bradford.

BOSTON HOMEOPATHIC MEDICAL SOCIETY.—At the annual meeting of the Boston section of the Massachusetts Homeopathic Medical Society, on Jan. 7, Dr. Frederick W. Colburn was elected president for the ensuing year. Dr. B. T. Loring was elected first vice-president; Dr. Frederika Moore, second vice-president; Dr. H. E. Diehl, secretary; Dr. Rudolph Jacoby, associate secretary; Dr. E. W. Smith, treasurer; Dr. W. O. Mann, auditor; Dr. O. R. Chadwell, Dr. E. S. Calderwood and Dr. F. R. Sedgley, censors.

BOSTON ASSOCIATION FOR RELIEF AND CONTROL OF TUBERCULOSIS.—A conference on communicable diseases and their relation to the handling of food was held under the auspices of the Boston Association for the Relief and Control of Tuberculosis on Tuesday of this week, Jan. 19, at the Twentieth Century Club, with Dr. Edward O. Otis as presiding officer. The following ten-minute addresses were presented:

"Dangers in Handling Food by Persons Afflicted with Communicable Diseases," Allan J. McLaughlin, M.D., state health commissioner; Harry Linenthal, M.D., state health inspector, Boston.

"Tuberculosis in Its Relation to the Handling of Food," Cleaveland Floyd, M.D., director of out-patient clinic, Boston Consumptives' Hospital.

"Dangers from Syphilis," Abner Post, M.D., professor of syphilis, Harvard Medical School.

"Some Suggestions in the Employment of Labor," T. K. Cory, vice-president and store manager, William Filene's Sons' Co.; Henry Abrahams, secretary Central Labor Union.

The Association has recently issued a circular letter calling attention to its need for funds in continuation of its work during the coming year. Attention is also called to the Prendergast Camp, where 88 patients are waiting admission to some sanatorium; to the legislative work; the formation of an anti-tuberculosis league; co-operation with the Consumptives' Hospital in obtaining an appropriation to add 125 more beds in that institution; the distribution of 66,000 pieces of educational literature; illustrated lectures and exhibits in hospital clinics and fairs. A great amount of educational work is waiting to be done, and those who realize the importance of preventive measures for public health are asked to aid in the support of the Association.

## Current Literature

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

JANUARY 2, 1915.

1. *CHAPIN, H. D. *Are Institutions for Infants Necessary*
2. *HARRIS, L. T., AND OGAN, M. L. *Experiences of the New York Health Department in Typhoid Immunization.*
3. *ASH, J. E. *The Pathology of the Mistaken Diagnosis in a Hospital for Advanced Tuberculosis.*
4. *CARLSON, A. J. *Contributions to the Physiology of the Stomach. XXI. The Supposed Action of the Bitter Tonics on the Secretion of Gastric Juice in Man and Dog.*
5. *FRASER, J. *The Etiology and Pathology of Bone and Joint Tuberculosis.*
6. RYERSON, E. W. *Recurrent Spondylolisthesis, with Paralysis: Bone Splint Transplantation.*
7. *ADAMS, B. B. *The Causes of Scoliosis and Their Relation to Treatment.*
8. GUITERAS, G. M. *Plague in Havana.*
9. *NEW, G. B. *Cystic Odontomata.*
10. *IVY, R. H. *Mesothelial Tumors of the Jaws.*
11. RYTINA, A. S. *The Radical Removal of the Verumontanum, with Notes on Pathology.*
12. RANDALL, A. *The Endoscopic Treatment of Nocturnal Pollutions.*
13. CRAIG, C. L. *Anarthria Due to Syphilis.*
14. SCHMITTER, F. *Sprue Treated by Emetin Hydrochlorid.*

1. Chapin believes that large institutions for the care of infants are undesirable, that the infant has great need of individual care which can never be given in an institution; where the spread of infections, to which the infant is particularly susceptible, are liable. Boarding out with a trained nurse is the next most desirable condition to that of the home.

2. These authors again speak for the great value of anti-typhoid vaccination. They warn against giving it to pregnant women or during the menses. Severe reactions have never left permanent injuries. The vaccine is in no way an antitoxin but only a preventive. Chronic illness (tuberculosis, etc.), as well as debility from other causes, fatigue and exhaustion, predispose to severe reactions. Injections after intimate or long exposures hasten the onset.

3. Ash's paper bears a timely note of warning in regard to mistaken diagnoses in tuberculosis. The paper is of interest.

4. Carlson believes he has proved that the so called stomachics or bitter tonics have no influence other than psychic or, increasing secretion of gastric juice.

5. This paper is a thorough and interesting review of this subject to date.

7. Adams' paper is a well thought out analysis of this subject.

9 and 10. These two papers are of very practical interest and are well illustrated by x-ray and pathologic plates.

12. Randall seems to have made a decided advance in detecting the pathology of these cases.

[E. H. R.]

THE LANCET.

DECEMBER 5, 1914.

1. *GOODALL, E. *The Croonian Lectures on Modern Aspects of Certain Problems in the Pathology of Mental Disorders.*

2. IREDELL, C. E. *A Case of Leprosy Treated with Radium and Diathermy.*
3. TAYLOR, S. *On Some Cases of Anomalous Fever.*
4. BENIANS, T. H. C. *Glycerine in Bromidrosis, with a Note on Military Needs.*

1. In the first Croonian Lecture, Goodall discusses certain aspects in the pathology of mental disorders. He discusses first the dementia precox group of cases and gives a general review of the findings of various observers of pathology, with particular reference to inoculation experiments and the presence of spirochetes and other organisms in the brain cortex. He takes up the subject of disorders of metabolism in insanity, and the value of thyroid administration in mental disorders and in epilepsy with insanity. He presents a very long and elaborate bibliography. [J. B. H.]

DECEMBER 12, 1914.

1. *GOODALL, E. *The Croonian Lectures on Modern Aspects of Certain Problems in the Pathology of Mental Disorders. Lecture II.*
2. MAKINS, G. H. *Note on the Wounds of the Soft Parts Produced by the Modern Bullet.*
3. SCOTT, J. W. *Note on a Fatal and Exceptionally Intense Infection with Malaria (P. Falciparum).*
4. PRONGER, C. E. *Insomnia and Suicide.*
5. SIMPSON, W. J., AND HEWLETT, R. T. *Experiments on the Germicidal Action of Colloidal Silver.*

1. In the second Croonian Lecture, Goodall discusses the relation of the ductless glands to mental disease, and then considers constipation and other disorders of the gastro-intestinal organs as causes of auto-intoxication and their possible bearing in mental disorders. He devotes considerable time to the subject of leucocytosis in various mental disorders, especially dementia precox, epilepsy, and melancholia. [J. B. H.]

## BRITISH MEDICAL JOURNAL.

DECEMBER 5, 1914.

1. BLAND-SUTTON, J. *The Value of Radiography in the Diagnosis of Bullet Wounds.*
2. *LINDSAY, J. A. *The Threshold of Disease.*
3. *WILKIE, D. P. D. *Acute Appendicitis and Acute Appendicular Obstruction.*
4. SHIPLEY, A. E. *Leeches; Exotic Leeches.*
5. JUNG, C. G. *On the Importance of the Unconscious in Psychopathology.*
6. JONES, E. *The Significance of the Unconscious in Psychopathology.*
7. MACKENZIE, T. C. *Some Considerations Regarding Insanity in the Highlands.*
8. TURNER, W. A. *Epilepsy and Cerebral Tumor.*

2. Lindsay, under the very suggestive title, "The Threshold of Disease," discusses the early diagnosis of endocarditis, cancer of the stomach, disseminated sclerosis, and pulmonary tuberculosis, devoting special attention to the diagnosis of pulmonary tuberculosis. He discusses the various well-known methods and the less known modern methods of diagnosing this condition, and reaches a very sane conclusion that there is "no sure short cut to a summary diagnosis of incipient pulmonary tuberculosis at present available."

3. Wilkie discusses acute appendicitis and its relation to acute appendicular obstruction. It would seem to be a rather fine point further to subdivide cases of appendicitis in this way. He discusses in detail the various forms of obstruction and their causes. [J. B. H.]

## EDINBURGH MEDICAL JOURNAL.

DECEMBER, 1914.

1. *ROSS, J. N. MACB. *Some Observations upon Primary New Growths of the Mediastinum from a Study of Sixty Cases.*
2. **Collective Report. Perforated Gastric Ulcer.*
3. FOWLER, J. S. *The Nutritive Diseases of Infancy: A Review.*

1. Ross gives an excellent study based on sixty cases of new growths of the mediastinum. Malignant disease of the mediastinum is not so rare as is generally supposed, whereas innocent tumors are very unusual. It is essentially a disease of early middle life, twice as common in males as in females, and seems to be increasing in frequency. A definite history is often found, and is commonly one of malignant disease. Though tubercle bacilli are rarely present in the sputum, there is possibly some relationship between pulmonary tuberculosis and new growths of the mediastinum. The anterior mediastinum is the common seat of origin. Lympho-sarcoma is the commonest form of the disease. The lungs are practically always affected sooner or later, and pulmonary symptoms are generally present. The right lung is much more frequently affected than the left lung: Extrathoracic metastases are very common and often very palpable. Pyrexia, if present, is due to some complication supervening upon, or caused by, the original condition. Microscopic examination of the sputum is rarely of value, although the persistent absence of tubercle bacilli in a case suggesting pulmonary tuberculosis is very significant. Hemoptysis, though moderately common, is rarely severe. A pleural effusion is often present, and is often hemorrhagic, but a hemorrhagic effusion is not pathognomonic of malignant disease. Examination of the fluid is rarely of diagnostic value. A large proportion of lymphocytes is quite as commonly found in a malignant as in a tuberculous effusion.

2. This article on perforated gastric ulcer is a collective report on a series of 247 cases treated in Edinburgh between 1896 and 1913. The data are presented in tabular form. There were 99 cases of gastric and 145 of duodenal perforation. The mortality was reduced from 70% during the period from 1896 to 1898 to 35% in 1909 to 1913. The majority of the patients were between 20 and 25 years of age.

In 146 instances, there was a previous history of indigestion or ulcer. The writers discuss the premonitory signs of perforation, the signs following perforation, and the site of the pain, vomiting, and the site of maximum tenderness and maximum resistance. The operative details and the exact position of the perforation and the conditions found on operation, are also described. Gastro-enterostomy was performed in 29 of the cases. [J. B. H.]

## DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 40. OCTOBER 1, 1914.

1. RUBNER. *Popular Food-Supply During War.*
2. CZERNY, V. *Preparation in War Surgery.*
3. LEXER, E. *The Basic Principles of Present-Day War Surgery.*
4. *GROBER. *The Clinical Aspects of Bacillary Dysentery.*
5. *BLASCHKO, A. *The Prevention and Treatment of Venereal Diseases During War.*
6. HOFFMANN. *Naval Sanitation.*
7. SCHUSTER. *The Organization of a Proper Public Health Service During the War. Part II.*
8. MAMLOCK. *Medico-Military Problems.* (*Review.*)
9. LIEPMANN, H. *Psychiatry During the Russian-Japanese War.*
10. OBENDÖRFFER, E. *Letters from the Battle Front.*

4. Dysentery has always been associated with the epidemiology of war. It is a hand to mouth infection, usually transmitted by a carrier through foodstuffs or drinking water, and is not caused by one specific organism but a variety of bacteria belonging to the same group. The essential pathological condition is an ulceration of varying severity found in the large intestine and less often in the lower part of the small intestine and appendix. The disease may be mild or rapidly fatal. It usually begins as a diarrhoea which becomes increasingly severe. As many as one hundred and eighty-six stools a day have been noted. The discharges are a first faecal, then contain mucous, pus and blood. Accompanying them is tenesmus and flatulence. Fever is usually absent. The pulse is slow and of poor quality. The urine may contain albumin and casts. Death occurs from exhaustion and is usually sudden. Recovery is gradual, and relapses occur frequently. Good therapeutic results have been reported from polyvalent serum. This can be given intramuscularly or intravenously but is by no means specific. Aside from this, the treatment is symptomatic. Grober advocates the early use of cardiac tonics such as camphor and digitalis, and a rather liberal typhoid diet. Finally, rigid isolation and sterilization must be enforced.

5. Blaschko believes that efforts should be made to check venereal disease in the present war by two methods. Firstly men and women must be closely supervised. When disease is discovered the patients must be hospitalized and kept under supervision until they have recovered. Secondly, Blaschko advocates general education of the soldiers upon venereal diseases and their consequences. For this purpose he has written a small pamphlet for distribution. This states simply that the men under arms owe their lives and health to their country; venereal disease is incapacitating; women camp-followers are a constant menace to the soldier's health. If any venereal disease is contracted Blaschko urges the individuals to report themselves to the physician in charge. [R. F.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 46. NOVEMBER 17, 1914.

1. LIER. *Spirochetal "Rests"; the Abortive and Combined Treatment of Syphilis.*
2. CHILARDITE. *Further Contribution to the X-ray Treatment of Hypertriasis.*
3. MASAY. *Fetal Infections.*
4. WIEDHOPF. *A Case of Meaglocolon in a Man of Seventy.*
5. FRIED. *The Treatment of Furuncles.*
6. *MEYER. *A New Apparatus for the Treatment of Writer's Cramp.*
7. *HOCHLAUS. *The Treatment of Tetanus.*
8, 9, 10, 11, 12. *ALEXANDER, KUHNE, ROTHFUCHS, MÜLLER, AND KREUTER. *Articles on Tetanus.*
13. BAEYER. *Artificial Limbs.*
14. SCHNÉE. *A Clamp for Forcible Extension in Wounds of the Long Bones.*
15. HOTZ. *Wounds of the Nervous System.*

6. Meyer puts the hand in the proper position for writing and then makes a cast. This holds the hand in the proper position and prevents any spasm. This stiff glove is used until the tendency to contracture is over.

7, 8, 9, 10, 11, 12. Hochlaus reports his experiences in 46 cases of tetanus, and concludes by advising first the prophylactic use of serum, as powder in the wounds and subcutaneously; when tetanus is present the intraspinal and intravenous use, together with morphia and subcutaneous use of $Mg.SO_4$. Kreuter treated 31 cases entirely by intraspinal and intravenous use of large doses of serum, with a mortality of 35% as against other lists of cases showing 57 to 62% mortality. He says the magnesium sulphate and carbolic acid treatment are useless. Müller has seen very little result from the use of magnesium sulphate and serum, although he uses serum right along. He found very hot baths to be a great help. In two cases he had relief from tracheotomy. Rothfuchs used salvarsan with benefit in four cases. Kühn used luminal, about 1 gm. per day. Alexander gave eight cases 10 gm. of chloral per day in a single day and all recovered; two with 5 gm. died. [E. L. Y., JR.]

BERLINER KLINISCHE WOCHENSCHRIFT.

No. 40. OCTOBER 5, 1914.

1. VIRCHOW, H. *The Position of Thoracic Organs in Extreme Kyphosis.*
2. KOHNSTAMM, O. *Interruption of the Mind and Cyclic Insanity.*
3. *MARCUSE, E. *The Roentgenologic Diagnosis in Stenosis of the Small Intestine.*
4. UNNA, P., JR. *New Experiences in the Treatment of Smallpox Pitting.*

3. Marcuse discusses the x-ray diagnosis of stenosis of the small intestine, with particular reference to the portions between the proximal loop of the jejunum and the terminal loop of the ileum. Filling defects, retention, and changed peristalsis are given as possible but not constant or pathognomonic signs. Emphasis, however, is focused on dilatation of the intestinal loop proximal to the stenosis, which gives an x-ray picture of a ball partly filled with fluid and partly with gas. These hollow balls may persist for 24 hours, and may be so pronounced that they may occasionally be seen without the use of bismuth. Small intestine air bubbles can be easily distinguished from gas in the stomach, duodenum, colon, penetrating ulcers of subdiaphragmatic abscess. The variety of stenosis cannot be accurately determined in the small intestine by this sign, because only the dilated and not the stenosed portion of the gut is seen. [G. A. L., JR.]

WIENER KLINISCHE WOCHENSCHRIFT.

No. 41. OCTOBER 8, 1914.

1. *KOWARSCHIK, I., AND KEITLER, H. *Diathermia in Gynecological Disease.*
2. ROSENFELD, S. *Notifiable Infectious Diseases in Vienna.*

1. The authors cite fifty cases of gynecological disease treated by diathermia, with forty-two immediate cures. They believe, therefore, it has a place in the treatment of such cases. [F. S. K.]

No. 42. OCTOBER 15, 1914.

1. *PASSINI, F. *Lumbar Puncture in Chorea.*
2. ROSENFELD, S. *Notifiable Infectious Diseases in Vienna, Years* 1901-1910.

1. The author used lumbar puncture in five very severe cases of chorea. Three cases responded, two did not. [F. S. K.]

No. 43. OCTOBER 22, 1914.

1. *KRAUS, M. *Dentistry for the Wounded.*
2. ROSENFELD, S. *Notifiable Infectious Diseases in Vienna,* 1901-1910.

1. This article is a plea for immediate care of the teeth and pain in soldiers after wounds, and shows how much better the results are if done early than if done later after callus formation. [F. S. K.]

No. 44. OCTOBER 29, 1914.

1. *GLASER, O. *Chronic Veronal Poisoning.*
2. HERSCHMANN, H. *Psychic Changes Following Resuscitation After Hanging.*

3. INFELD, M. *Paradoxic Cerebral Hemorrhage from Trauma.*
4. JOACHIM, A. *Tuberculin Treatment in Progressive Paralysis.*
5. MULLER, H. *Case Histories of Two Paralyses of Musculo-Cutaneous.*
6. RAIMANN, E. *Hysteria.*
7. REDLICH, E. *Statistics on the Etiology of Nervous and Mental Diseases.*
8. REZNICEK, R. *Dermographism.*
9. WEXBURG, L. *Late Gastric Tetanus.*

1. The author cites ten cases of chronic veronal poisoning. It results from continued use for some months. The symptoms are referable to the nervous system and the bowels and kidney action is depressed. [F. S. K.]

No. 45. NOVEMBER 5, 1914.

1. KRAUS, R. *Vaccination and Treatment of Typhoid.*
2. FINGER, F. *Venereal Disease and the War.*
3. FRANKL, O., AND KIMBALL, C. *Influence of X-ray on Mouse Tumors.*
4. ROSENFELD, S. *Notifiable Infectious Diseases in Vienna* 1901-1910.

No. 46. NOVEMBER 12, 1914.

1. *MARBURG, O. *Gun Shot Wounds of the Skull.*
2. v. HABUER, H. *Thirteen Gun Shot Aneurysms.*
3. BERNHEIMER, S. *Gun Shot Wounds of the Eyes.*

1. The authors conclude from thirty-three cases that in cases in which the bullet strikes at a tangent if there is evidence that the bone has been depressed operation is indicated. Operation is also indicated in cases in which the projectile enters direct and lodges close to the surface. Non-operation except for pressing symptoms is the better rule for deep-seated projectiles. If brain tissue is cut it indicates so generalized a process that non-interference is the rule. [F. S. K.]

No. 47. NOVEMBER 19, 1914.

1. RIEHL, M. *Treatment of Phlegmons in Continuous Bath.*
2. *ARZT. *Cholera and Cholera Vaccination.*
3. SUCHAUEH, E. *War Phlegmons.*
4. HOSNA, E. *Comparative Meteorology at Sea Resorts.*

2. The author cites 25 cases of cholera. He treats the cases by rubbing the body with camphor during the cramps, injecting salt solution. After the first collapse he gives colus alba. Two cases seem to have been aborted by vaccination early. [F. S. K.]

DEUTSCHE ZEITSCHRIFT FÜR CHIRURGIE.

BAND 131. HEFT 1-6.

AUGUST-OCTOBER, 1914.

1. DRACHTER, R. *Cleft Palate and Its Operative Treatment.*
2. RICHTER, R. *Volvulus in Hour-Glass Stomach.*
3. TOREK, F., *Interpleural Pneumolysis: An Operative Procedure in Pulmonary Tuberculosis.*
4. MERTENS, G. *Anatomo-Technical Study on the Question of Pneumolysis.*
5. FALTIN, R. *The Knowledge of Pneumotosis Cystoides of the Intestines.*
6. KAWAMURA, K. *Experimental Studies on Pulmonary Extirpation.*
7. *WAGNER, A. *Cases and Operation of Obturator Hernia.*
8. BRANDES, M. *Observations on Juvenile Osteochondritis Deformans.*
9. JENCKEL. *The Pathology and Treatment of Acute Pancreatic Necrosis.*
10. *STIERLIN, E., AND VISCHER, A. L. *Surgical Observations on All Stages in the Serbo-Turkish War, 1912-1913.*
11. *OZAKI, Y. *The Bacteriologic Significance of the Secretions of the Skin Glands in Aseptic Surgery.*
12. *BOLOGNESI, J. *The Pathogenesis of So-called Bone Cysts.*
13. JIANU, A. *Oesophagoplastic.*
14. FISCHER, H. *Diabetes and Surgery.*
15. HARTTUNG, H. *Hemorrhoidal Knots in the Newborn, with a Contribution to the Etiology of Hemorrhoids.*
16. FRANKENTHAL, L. *Cystinuria and Cystin Stones.*
17. *SIMON, W. V. *Paranephritic Abscess.*
18. SCHUMKOWA-TRUBINA. *The Abderhalden Reaction in Carcinoma.*
19. KASPAR, F. *The Clinical and Surgical Treatment of Chronic Duodenal Ulcer.*

7. From Roth's surgical clinic at Lübeck, Wagner reports a case of obturator hernia, and discusses the various operative methods of treating this condition.

10. At the present juncture there is much timely interest in this article by two Swiss surgeons from Basel on their military surgical experiences during the recent Balkan war with Turkey.

11. As a result of bacteriologic experiments at Ito's surgical clinic in Kyoto, Ozaki expresses his conviction that after thorough previous disinfection of the bands, the sweat secreted on the skin surface affords no new source of infection.

12. From Remedi's surgical clinic at Modena, Bolognesi reports experimental investigations on the etiology of bone cysts, and discusses the various theories of their origin,—congenital, traumatic, inflammatory, specific, parasitic, systemic, and neoplastic.

17. Simon's article, based on 35 cases of paranephritic abscess treated in Küttner's surgical clinic at Breslau, presents a complete study of the material, with full case reports. [R. M. G.]

BULLETTINO DELLE SCIENZE MEDICHE.

OCTOBER, 1914.

1. *FORNI, G. *Observations on a Hundred Tumors.*
2. ROCCHI, G. *The Superficial Tension of the Blood in Experimental Intestinal Occlusion.*

1. This extensive article, by a worker in Martinotti's institute of pathologic anatomy at Bologna, constitutes a valuable monographic contribution to the study of neoplasms. [R. M. G.]

NOVEMBER, 1914.

1. *MONTANARI, A. *Experimental Stenosis of the Pulmonary Artery.*
2. BRINCANI, G. *Action of Salicylic Preparations on the Kidney.*

1. In this contribution to the study of the relation existing between hyperglobulia and congenital defects of the heart, Montanari concludes that it is possible to produce experimentally in rabbits stenosis of the pulmonary artery of notable degree. Such stenosis, he finds, is not accompanied by true hyperglobulia. [R. M. G.]

IL POLICLINICO.

SURGICAL SECTION.

OCTOBER, 1914.

1. UFFREDUZZI, O. *Separation of the Lower Epiphysis of the Femur, and Its Operative Cure.*
2. MOSTI, R. *Common and Simple Appendicocele with Partly Adherent Sac.*

3. *SCALONE, I. *An Exceptional Indication for Plugging for the Cure of a Suppurative Lesion of the Thyroid, and the Use of Plugging in Modern Surgery.* (*To be continued.*)

NOVEMBER, 1914.

1. MAROGNA, P. *Clinical Considerations on Seven Cases of Renal Tuberculosis.*
2. *SCALONE, L. *An Exceptional Indication for Plugging for the Cure of a Suppurative Lesion of the Thyroid, and the Use of Plugging in Modern Surgery.* (*Conclusion.*)
3. BRANCATI, R. *The Gastro-Intestinal Ulcerative Effects of Experimental Resection of the Lumbar Sympathetic.*
4. AZARA, P. *Fever in the Ovariectomized.*
5. FRATTIN, G. *Contribution to the Knowledge of Adenomata of the Sudoriparous Glands.*

2. Scalone presents the results of his experience in the surgical use of Beck's paste. The thyroid case reported was probably an instance of persistent thyro-glossal duct. [R. M. G.]

## Obituary.

### ALBERT VAN GEHUCHTEN, M.D.

DR. ALBERT VAN GEHUCHTEN, professor of the anatomy, pathology and treatment of diseases of the nervous system at the University of Louvain, Belgium, died of acute volvulus at Cambridge, England, on December 9, 1914. He was born in Belgium in 1861 and pursued his medical education in the laboratory of Professor Carnoy and at Berlin and Frankfort. His first publication was in 1886 on the structure of muscle cells, in which he advocated the theory of the unity of cell structure. In 1887 he returned to settle at the University of Louvain, where he had been appointed instructor of anatomy. In 1890 appeared his second publication, a study of the olfactory mucosa of mammals, in which he first definitely entered the field of neurologic research. From this time he published in rapid succession a series of brilliant investigations in this department of science. His neurologic publications have been divided into four groups, which are described as follows in the issue of the *British Medical Journal* for December 26:—

"The first, appearing between 1890 and 1896, embraces a series of important publications bearing for the most part on the structure of nerve centres—the olfactory bulb, the structure of the optic lobes, the nerve cells of the sympathetic nervous system, cerebrospinal ganglia, etc. In this group our present-day conception of the neuron was placed on an unassailable foundation, namely, that the neuron comprises a cellular body, protoplasmic prolongations for cellulipetal transmission, and an axis cylinder prolongation for cellulifugal transmission, both kinds of prolongation having a free termination, the nerve conduction from one neuron to the other being affected by the contiguity of the end ramifications of the axis cylinder of one neuron to the protoplasmic prolongations of the neighboring neuron. The conception that the neuron appeared as an independent and fundamental unit was the solid basis upon which van Gehuchten built all his later researches on the true origin of nerves, and on the course of fibre bundles in the cerebrospinal axis. In 1897 began van Gehuchten's long and fruitful series of study on methylene-blue staining methods, a report on which he presented to the International Congress of Medicine at Moscow in that year. He found that this method was of greater value in the examination of the more intimate nerve structures and their modifications than that of Golgi, hitherto used, which had the disadvantage of being too coarse. Further research in this direction led to investigations on the phenomenon of chromatolysis, and all these investigations are important as forming the basis on which rested his study of the true origin of motor nerves. They gave rise to a number of works on nervous pathology, and were even applied to the complex study of organic lesions in mental affections, especially in dementia precox, and led to van Gehuchten's interesting discoveries on the pathological anatomy of dementia. He proved that the pathological process of rabies had a special predilection for the sympathetic spinal and cerebral ganglia, producing in the nerve cells of these ganglia primary modifications of a chromatolytic nature as well as secondary modifications due to the active proliferation of the endothelial capsule of the nerve cell, which leads to its destruction, and the formation of characteristic rabid nodules.

"The second group of publications, commencing in 1898, deals with the origin or termination of the peripheral nerves and the tract of certain bundles of neurons in the cerebrospinal axis, and, in these days of confused literature on the subject, form classic models by their compass, clearness and precision, as well as by the value and novelty of their conclusions. All these experimental researches, carried out by section, rupture, or more frequently by the extirpation of the nerve in rabbits, were corroborated by the study of comparative anatomy and embryology of the nervous system and by *post-mortem* investigations. Finally, by the discovery of a new method based upon the phenomenon of direct Wallerian degeneration, van Gehuchten gave an exactitude to the results of his studies of the intra-cerebral or medullary course of the motor nerves and certain central nerve tracts never hitherto attained. This indirect Wallerian degeneration was described by van Gehuchten in an exhaustive report presented to the international Congress of Medicine at Madrid in 1903. He showed that if, instead of dissecting a nerve it was torn out, degeneration followed not only of the peripheral but of the central portion of the nerve, such central degeneration being not

retrogressive but descending, like that of the peripheral portion, this being due not to the direct separation of the nerve itself, but to the atrophy of the cells from which it originated and fatally injured by this violent traumatism. Having identified by this new method each one of the peripheral nerves, Professor van Gehuchten extended his ingenious researches into the complex field of the acoustic and olfactory nerve tracts, the central connections of Deiter's nucleus, the superior cerebellar peduncle, the cerebrobulbar fasciculus, etc., with most brilliant results. We would especially mention in this connection his study on the inhibitive fibres of the heart, a problem which has puzzled many celebrated physicians, but resolved by van Gehuchten, who directly traced the connection of these fibres to the pneumogastric nerve instead of to the spinal accessory.

"The third group of publications deals with problems of nervous pathology, including studies on the central motor neurone of the pyramidal tract, on acute anterior poliomyelitis in the adult, on the pathogenesis of decubitus, on Babinsky's phenomena, on aphasia and syringomyelia. Of his work bearing on the pyramidal tract the most important is that concerning the mechanism and seat of reflex movement, in which he showed that tendon reflex is independent of muscular tonicity, that section or compression of the medulla is accompanied, not by increase of reflex movements, but by disappearance of both tendon and cutaneous reflexes."

The fourth group of publications includes a dozen anatomies and text-books on the nervous system.

Dr. van Gehuchten was a distinguished clinician as well as a laboratory scientist of eminence. He rendered particularly valuable work in the localization of lesions of the central nervous system. He suggested important methods in the surgical treatment of cerebral and medullary tumors and in trigeminal neuralgia. He also proposed, and successfully accomplished, a less complicated method of resection of the postradical filaments instead of the posterior nerve roots. He was a brilliant teacher and investigator, and his premature death is a serious loss to science and to his unfortunate University.

## Miscellany.

### MEMORIAL RESOLUTIONS.

### CHARLES SEDGWICK MINOT, M.D., LL.D., D.Sc.

AT the meeting of the council of the American Association for the Advancement of Science held in Philadelphia on December 29, a minute[1] was adopted in memory of Dr. Minot. The minute, which was presented by Professor Cattell and adopted by a rising vote, is as follows:—

"The council of the American Association for the Advancement of Science places on record its sense of irreparable loss in the death of Charles Sedgwick Minot and its appreciation of the value of his services to science, to education and to human welfare. Endowed with the best New England blood and traditions, trained there and in the schools of France and Germany, keen in intellect, wise in counsel, sure in action, sincere in friendship, he devoted his life to the advancement of science, the improvement of education, and the betterment of the agencies on which science and education depend. His contributions to embryology, anatomy and physiology gave him leadership in those sciences; his high ideals of education aided in advancing the standards of medicine in America and in placing the Harvard Medical School in its commanding position. Not only by his original researches, by his masterly books and by his fine addresses and lectures, but in countless other ways, he helped his fellow-workers in science—in the construction of microtomes; in the establishment of a standard embryological collection; in the improvement of bibliographical and library methods; in the unit system of laboratory construction, followed in the beautiful buildings of the Harvard Medical School; in the early development of the Marine Biological Laboratory at Woods Hole; in the Boston Society of Natural History, of which he was president for many years and until his death; in the Wistar Institute for Anatomy and Biology; in the administration of the Elizabeth Thompson Science Fund and the Bache Fund of the National Academy of Sciences; in international relations, as when visiting professor to Germany and in the foreign publication of his books; in the editing of *Science* and of journals of anatomy, zoology and natural history; in the founding and the conduct of the American Society of Naturalists and the Association of the American Anatomists; in the establishment of the convocation week meetings of scientific societies; for us especially by his leading part in the work of the American Association for the Advancement of Science, of which he was secretary of section, general secretary, twice vice-president, president, a constant member of the council, at the time of his death chairman of the committee on policy. In the American Association, as elsewhere, Charles Sedgwick Minot leaves a vacant place which can never be filled. We take up our work sadly in his absence; but we know that it will in all the years to come be more fruitful for the heritage of his service."

[1] Reprinted from the issue of *Science* for Jan. 8, 1915.

## THEODORE WILLIS FISHER, M.D.

These resolutions on the death of Dr. Theodore W. Fisher were adopted at a meeting of the Boston Society of Psychiatry and Neurology:—

DR. THEODORE WILLIS FISHER, an original member of this society, was born in Westboro, May 29, 1837, and died October 10, 1914. He was educated in the schools of Medway and Williston Seminary and Phillips Academy of Andover, and graduated at the Harvard Medical School in 1861. He was a surgeon of the 44th Regiment in the Civil War. He was appointed superintendent of the Boston Lunatic Hospital in 1881 and resigned from that position in 1895. For several years he examined for the public institutions commissioner of Boston most of the insane committed to the state insane hospitals from that city, and saw many cases of mental disease in consultation. Later he was appointed lecturer in mental diseases in the Harvard Medical School. In the seventies, he was the leading expert in his branch in Boston and was frequently called on to testify as a witness in court. He was active in all matters concerning the welfare of the insane and earnestly advocated a new hospital for the insane of Boston. He largely planned the Danvers State Hospital and the buildings first erected by the Boston Lunatic Hospital at West Roxbury. He belonged to many medical societies and was president of this society in 1893.

He was the author of a number of papers. Among these was one entitled, "Was Guiteau Sane and Responsible for the Murder of President Garfield?" published in the BOSTON MEDICAL AND SURGICAL JOURNAL in 1888. He could speak with some authority on this subject as he was employed as an expert in the Guiteau trial. As showing his interest in medical progress, mention may be made of a paper he published in 1889 on "Cortical Localization and Brain Surgery," and another on "The New Psychology," in 1893. Until the last few years of his life, Dr. Fisher continued to be prominent as an energetic worker in the field of mental disease. Unfortunately for his co-workers, he became disabled and was obliged gradually to relinquish the duties which he had performed so well.

*Resolved,* That this society wishes to place on record its appreciation of the services performed for many years by Dr. Fisher as a progressive and active leader and teacher in the field of mental disease, and its regret that the last years of his life were rendered hard for him by incapacitating illness. It also wishes to record the loss it feels this society has sustained in the death of a faithful and valuable member and kind friend.

*Resolved,* That a copy of these resolutions be sent to the family and printed in the BOSTON MEDICAL AND SURGICAL JOURNAL.

WALTER CHANNING,
GEORGE T. TUTTLE,
EDWARD COWLES.

## GEORGE DEXTER BULLOCK, M.D.

THE following memorial resolution was adopted by a rising unanimous vote at the latest regular meeting of the Norfolk South District Medical Society:—

GEORGE DEXTER BULLOCK was born in Taunton, December 6, 1859, and died in Weymouth, on his birthday, December 6, 1914. His elementary education was received in his native city, after which he entered the New Hampton Literary Institution, New Hampshire, in 1878, graduating from that institution in June, 1881. He then entered the Jefferson Medical College of Philadelphia, graduating in 1885. Two years later he began the practice of his profession in Weymouth. Dr. Bullock was the son of a physician, from whom no doubt, he inherited many of his nice ethical qualities, which he exhibited in his intercourse with his brother physicians. His successful twenty-seven years of practice in Weymouth were marked by love of his profession by his strict consideration for the rights of his brother practitioners, and his entire honesty with his patients. It could not have been otherwise, for he possessed the qualities of head and heart that are so essential to the fulfillment of such honorable traits. Dr. Bullock was a man of decided opinions, always adhering strictly to that which he thought was right. He was a man of kindly disposition, agreeable to meet, either as a physician or man, and absolutely true to his friends. Our sympathies go out to his bereaved family—widow and daughter—who will mourn him. The community in which he lived will miss him, and the South Norfolk District Medical Society will feel the loss of a valuable member.

J. C. FRASER,
E. N. MAYBERRY,
V. M. TIRRELL,
*Committee.*

## ANGELL MEMORIAL HOSPITAL.

THE new building of the Angell Memorial Hospital for Animals, on Longwood Avenue, Boston, has been recently completed and informally opened, and will soon be occupied for work.

"The hospital is built around a central court for large animals, which enter by the front and are received and taken to various special rooms for appropriate treatment. Most of the novelties of the arrangement are on the first floor level, which is somewhat above the grade of the entrance roadway. The left-hand wing of this first floor is devoted to the offices of the agent and superintendent and the right of the main arched way is the entrance to the business office of the hospital and the clinic for small ani-

mals. The right-hand wing, next to the Harvard Dental School, and the rear wing are also given up to the treatment of larger animals. Midway of the right wing is the horse clinic, comprising an operating room and the soak stall room. This latter is a very important feature, tested by the experience of the Veterinary Hospital of the University of Pennsylvania.

"Operating facilities for large animals are exceptionally complete. One of the most interesting devices is the horse operating table, which consists of a huge tilting leaf of planks. The horse about to be operated upon is made to stand against this leaf in a vertical position and is securely strapped to the leaf, then the leaf is tilted over into a horizontal position, and there is the patient on a proper operating table. After the operation, the leaf or tilt, with the horse still strapped to it, is carried to the surgical ward, where the horse is unstrapped and slid off to a tan-bark floor, where he may recover at leisure from the anesthetic.

"In the middle of the rear wing are the medical wards, cut by brick walls into two sections which are subdivided into stalls. In the back left-hand corner is a roomy contagious ward and towards the front of this ward are two brick enclosed stalls for horses suspected of contagious disease. Still further towards the front of the building is a large tan-bark space 30 by 37 feet, where horses suffering from 'black water,' and some other troubles which lead them to kick may be allowed to lie out and thrash around at their pleasure.

"On the second floor of the wing are several wards for small animals and an exercise room, and in the right wing the operating room for small animals, the bacteriological laboratory, wards with cages for small animals, in the back right-hand corner a kitchen for small-animal food. An open corridor surrounds three sides of the central open court on this level, and not only furnishes more exercise ground but provides various effective ventilation through all the second floor rooms. Exercise yards for small animals have been provided on the roofs of the wings, which may later be raised by an additional story if the work of the hospital requires it. So far, provision has been made for horses and small animals; but the whole basement has been excavated so that there is ample room for dealing with hogs and sheep.

"In the central, or memorial portion of the building, the second story is occupied mainly by the offices of the president and treasurer, the library, and by the marble-paved central corridor, back of which is a memorial hall in which the names of contributors to the fund of the society will be preserved in large books mounted in cabinets. On the top of the central section is the publication department, and directors' room and committee and work room."

## LARREY AT WATERLOO.

OF particular interest at the present time is the account of Baron Larrey, the great French Napoleonic surgeon, at Waterloo, and his subsequent treatment and care at Louvain, the history of which appears in *La Chronique Médicale*, written some time before the outbreak of the present European war. Professor Masoin of Louvain is the author of the communication.

"At a late hour in the terrible day of Waterloo, Baron Larry retired at the head of his small surgical force, when suddenly he found his retreat blocked by Prussian soldiers. Not knowing the strength of the column, the corps of physicians attempted to force a passage, but were hurled back by a solid wall of Prussians. The Baron's horse fell, wounded by a musket ball, Larrey receiving two sabre wounds, one on the head, the other in the shoulder, which rendered him unconscious. Coming to his senses after a time, he tried to crawl away, but was seized again by the Prussian cavalry, who subjected him to many brutalities and insults. The wounded Larrey's clothing was removed and his captors, noting its richness and the costliness of his accoutrements, thought they had captured Napoleon himself. Larrey was taken from post to post with this idea, finally being brought before a general who, recognizing the soldiers' mistake, was furious and ordered the unfortunate prisoner to be shot immediately. The firing squad was ready to do its duty, when a surgeon approached to blindfold the prisoner. Suddenly recognizing Larry, whose student he had previously been, the surgeon cried out it was impossible to put to death the great Larrey in such a manner. Evidently, his request for a reprieve was granted, for they set out on the march and Larrey was taken before General Bülow, who sent the prisoner on to the famous Blücher. This proved to be not only lucky for Larrey but resulted in his complete safety, as one of Blücher's sons had been saved by Larrey during a military campaign in Germany. An escort was given and Larrey sent to Louvain for treatment. Here he was under the care of Dr. Michotte, surgeon to the civil hospital, and of Dr. Hubert Vandepoël of the military hospital. The medal of St. Helen was later given to Dr. Vandepoël in recognition of his services to Dr. Larrey. Louvain was proud to have two of her surgeons care for and cure the battle wounds of the famous Larrey."

The first part of the account of Larrey's capture and journey to Louvain is well known to all, but the details of his treatment and stay in the city were, according to the article, not generally known before Professor Masoin's account. The latter's description is so graphic concerning Louvain and the war which caused Larrey's stay there, that one has for a moment a vivid idea that it must be of the present European struggle that one is reading, so nearly does history seem to have repeated itself.

## INTRAVENOUS MEDICATION IN THE SEVENTEENTH CENTURY.

IT is not generally recognized at what a very early date intravenous medication was practiced, but a recent article in *La Chronique Médicale* gives interesting light on this subject. In a work by Michel Etmuller, published in Amsterdam by Jean Aubie in 1691, the following occurs:

"For some time there has been a new method of introducing remedies into the body by injecting them immediately into the veins, which is known as infusion." He goes on, according to the article, to give the different reasons for which such treatment was given. "The English," said Etmuller, "were the first to practice this method, and it is probable that Voren, at that time a professor at Oxford, was the first to use the method. At the hospital at Dantzig the method was used also, and an intravenous infusion of scammony in guiac was given to a soldier with an inveterate syphilis with ulcerations of the legs and a tumor of the right arm. After the injection, he vomited, but in 24 hours the symptoms disappeared. The ulcers were healed in three days."

How like an account of the present intravenous use of salvarsan this recognized therapy of 220 years ago sounds.

## Correspondence.

### SURGICAL INSTRUMENTS FOR THE BELGIANS.

BOSTON, January 9, 1915.

*Mr. Editor:* I sent around recently to a number of the physicians of Boston a circular, asking for instruments, even of old style, and surgical supplies of any sort, for use on the fields of war and in the army hospitals, especially in Servia, Russia, and Montenegro. I did this in the belief that even limited personal contributions might in the aggregate reach a number. In response to this appeal I have received quite a number of valuable instruments, some of the best of which were amputating sets and pocket cases, while others consisted of obstetrical forceps and instruments for eye, ear, and throat work, all of which, I am assured, are certain to be welcomed.

I am now writing in hopes that some physicians may be reached to whom the circular did not go, especially physicians in other portions of the state. I would add subcu. syringes, if in fair condition, and supplies of morphine or strychnia, heart stimulants, and especially anesthetics are greatly needed; also that if anyone to whose attention this letter may come is acquainted with relatives of physicians who have died, especially former army surgeons, I should be greatly obliged if their attention should be called to this need.

Whatever is sent will be sent promptly, as I understand the vessel is to sail quite soon.

Yours very truly,

JAMES J. PUTNAM, M.D.

### WOMEN PHYSICIANS IN MEDIEVAL TIMES.

BOSTON, Jan. 6, 1915.

*Mr. Editor:* The following is from a prose translation of "Erec and Enide" by Chrétien de Troyes, among the best-known of old French poets of medieval times. Chrétien whote in Champagne during the third quarter of the 12th century, 1160-1172. We know, that according to Withington, in the early Middle Ages, the wounded soldier was first looked after by women.

"Guivret escorted Erec to a delightful, airy room in a remote part of the castle. His sisters, at his request, exerted themselves to cure Erec, and Erec placed himself in their hands, for they inspired him with perfect confidence. First, they removed the dead flesh, then applied plaster and lint, devoting to his care all their skill, like women who knew their business well. Again and again they washed his wounds and applied the plaster. Four times or more each day, they made him eat and drink, allowing him, however, no garlic or pepper. . . . But the damsels cheerfully and gladly showed such devotion in caring for him that, by the end of a fortnight, he felt no hurt or pain. Then, to bring his color back, they began to give him baths. There was no need to mistrust the damsels, for they understood the treatment well."

This poem was based on probable occurrences from Chrétien's knowledge of Arthurian legends and, if true, would certainly show a surprising amount of skill and knowledge for the times.

It is not generally known at what a very early date women took their place in organized medicine, for contemporary with the Lombard, Gariopontus, 1050, we find the famous woman physician, Trotula, who occupied the chair of Gynecology at Salerno at this time.

Very truly yours,

WM. PEARCE COUES, M.D.

### CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FROM DEC. 5, 1914, TO JAN. 9, 1915.

December 7, Surgeon J. S. Taylor, detached, *Illinois* to *Nebraska*.

December 8, P. A. Surgeon H. F. Lawrence, temporary duty, Newport Hospital.

December 9, P. A. Surgeon G. E. Thomas, detached, Naval Prison, to Navy Yard, Portsmouth, N. H.

December 12, Asst. Surgeon L. H. Roddis, detached, Marine Advance Base Expedition, Pacific Fleet, to Asiatic Station, via Transport sailing January, 1915.

December 14, P. A. Surgeon K. C. Melhorn, detached Advance Base Expedition, Pacific Fleet, Marines Mare Island, Cal.

P. A. Surgeon R. I. Longabaugh, detached, Third Regiment Marine, San Diego, Cal., to Regimental Headquarters, San Diego, Cal.

Asst. Surgeon L. Leherfed, detached, Marin Advance Base Expedition, Pacific Fleet, to Regimental Headquarters, San Diego, Cal.

P. A. Surgeon W. A. Angwin, to *Monterey*.

Asst. Surgeon P. B. Ledbetter, detached, *Pompey* to Olongapo Station.

Asst. Surgeon W. H. Massey, detached, Olongapo Station, to *Pompey*.

Asst. Surgeon C. S. Stephenson, to Naval Station, Cavite, P. I.

December 15, P. A. Surgeon W. H. Connor, detached, *Dubuque* to *Fulton*.

December 18, P. A. Surgeon E. W. Phillips, to Naval Hospital, Las Animas.

December 18, P. A. Surgeon E. V. Valz, detached, *Minnesota* to home.

P. A. Surgeon J. B. Pollard, to *Minnesota*.

December 22, Medical Director L. L. Von Wedekind, detached, *Solace* to home wait orders.

December 23, Medical Inspector R. M. Kennedy, detached, Naval Dispensary, Washington, D. C., to command *Solace*.

Medical Inspector C. H. T. Lowndes, detached, Marine Barracks, Washington, D. C., to Naval Dispensary, Washington, D. C.

P. A. Surgeon J. Stepp, detached, Naval Dispensary, Washington, D. C., to Marine Barracks, Washington, D. C.

P. A. Surgeon D. G. Allen, detached, Fifth Regiment Marines to *New Hampshire*.

P. A. Surgeon H. Shaw, to Navy Yard, New York.

P. A. Surgeon L. Sheldon, detached, Naval Medical School, Washington, D. C., to Naval Dispensary, Washington, D. C.

P. A. Surgeon M. E. Rose, detached, Fifth Regiment Marines to Navy Yard, Charleston, S. C

December 24, P. A. Surgeon E. A. Vickery, detached, Fifth Regiment Marines to Asiatic Station.

December 29, Surgeon W. Seaman, detached, Bureau of Medicine and Surgery, Navy Department to home and wait orders.

December 31, P. A. Surgeon W. A. Angwin, detached, *Monterey* to Naval Station, Cavite, P. I.

P. A. Surgeon Heber Butts, detached, *Wilmington* to *Monterey*.

P. A. Surgeon E. W. Phillips, detached, Naval Hospital, Philadelphia, Pa., to treatment, Naval Hospital, Las Animas, Colorado.

January 5, Surgeon W. Seaman, to Naval Station, Honolulu, T. H.

## BELGIAN PHYSICIANS' RELIEF FUND.

Report of the Treasurer of the Committee of American Physicians for the Relief of the Belgian Profession for the week ending January 9, 1915.

Contributions:

| | |
|---|---|
| E. G. M. | $ 10.00 |
| L. M. W. | 5.00 |
| A. T. | 10.00 |
| J. G. R. M. | 25.00 |
| J. C. T. | 25.00 |
| L. C. F. | 10.15 |
| E. T. F. | 10.15 |
| F. W. S. | 10.00 |
| G. L. H. | 25.00 |
| G. E. L. | 5.00 |
| E. E. K. | 10.00 |
| A. M. C. O. | 100.00 |
| D. S. M. | 10.00 |
| C. M. B. | 1.00 |
| M. C. M. S. | 25.00 |
| H. M. S. | 10.00 |
| E. H. M. | 5.00 |
| Total | $296.30 |
| Disbursements | None |
| Contributions previously reported | $662.50 |
| Grand total | $958.80 |

F. F. SIMPSON, M.D., *Treasurer*.

## APPOINTMENTS.

*Dr. Simon R. Klein*, professor of histology and embryology at Fordham University Medical School, has been appointed pathologist of the Norwich State Hospital for the Insane.

*Dr. Louis Schapiro*, of Milwaukee, Wis., has been appointed a member of the International Health Commission of the Rockefeller Foundation, to work in Costa Rica and northern Egypt.

## NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held in Sprague Hall, Medical Library Building, on Monday, January 25, 1915, at 8.15 P.M.

MEMORIAL ADDRESSES.

"Dr. Charles Sedgwick Minot," Dr. Richard Clark Cabot.

"Dr. James Gregory Mumford," Dr. William Townsend Porter.

The annual business meeting will be held at 9 P.M. Members of the Suffolk District Medical Society are cordially invited to attend.

E. W. TAYLOR, M.D., *President*.
R. M. GREEN, M.D., *Secretary*.

## SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-fifth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, January 29, 1915, at 8.15 P.M.

The following papers will be read:

1. "Acidosis in Children," Arthur A. Howard, M.D., Boston.

2. "Parenteral Immunization in Conditions of Proteid Sensitization," J. L. Goodale, M.D., Boston.

3. "Weaning—Its Relation to Anaphylaxis as Shown by Differential Blood Counts," H. C. Berger, M.D., Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *Pres.*
R. M. SMITH. M.D., *Sec'y*.

THE NEW ENGLAND HOSPITAL MEDICAL SOCIETY.—The New England Hospital Medical Society will hold its annual meeting at Boston University, 688 Boylston Street, Boston, Thursday, January 21, 1915.

Business meeting at 7.30. Election of officers.

Lecture at 8 P.M., by Sarah E. Palmer on "Cathedrals of Southern England and of Northern France. Development of Gothic Architecture." Illustrated by original slides.

The annual banquet was dispensed with this year because of the money given by the Society to aid the relief of war refugees in Europe.

ANNA O'SULLIVAN, *Secretary*.

## RECENT DEATHS.

DR. FRANKLIN M. COUCH, who died on January 10 at Dalton, Mass., was born in East Lee, Mass., in 1862. After graduating from Amherst College, he received the degree of M.D. from the New York Homeopathic Medical School in 1880. He had practised his profession at Dalton since 1885. He is survived by his widow and by one son.

DR. WILLIAM E. WALKER, of West Charleston, Me., died on January 1, 1915.

DR. LÉON VAILLANT, Professor in the Faculty of Sciences at Montpellier, has recently died at Paris.

DR. NATHANIEL MORTON RANSOM, a Fellow of The Massachusetts Medical Society since 1863, died of arteriosclerosis at his home in Somerville, Mass., January 8, aged 84 years. He was born in North Carver, Mass., on March 8, 1830. He was graduated from the Berkshire Medical College in 1861; lived first in Taunton, Mass., and for twenty-five years in Somerville. He was an ordained minister of the Advent church as well as a physician.